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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

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State of Illinois, } ss.
County of Cook }

Before me, a notary public in and for the State and county aforesaid, personally appeared G. C. Leininger, who, having been duly sworn according to law, deposes and says that he is the business manager of the Journal of Land and Public Utility Economics and that the following is, to the best of his knowledge and belief, a true statement of the ownership and management of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

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(Seal.) EDWARD B. DAVIDSON. (My commission expires, December 24. 1932.)

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CRITICAL ISSUES IN PUBLIC UTILITY REGULATION*

By DONALD R. RICHBERG

The Nature of the Problem

IN order to present a few suggestions concerning public utility regulation, within a reasonable space, the development of current issues will not be reviewed in detail. It will be assumed that in the extensive investigations of the Commission the weaknesses of present ways and means of regulation, the evils to be remedied and the more obvious causes thereof, have been amply revealed and exhaustively discussed. Therefore, the source and nature of the problems to be solved will be only briefly stated as the basis for expressing individual views concerning their solution.

1. The furnishing of public utility service is not a private business and those engaged therein are public agents performing a function of the state.

2. This doctrine has been long established in the construction of public highways and the operation of railroads.[1] "Whether the use of a railroad is a public or private use depends in no measure upon the question who constructed or owns it. * * * No matter who is the agent, the function performed is that of the State. Though the ownership is private, the use is public." Therefore, taxation in aid of a privately owned or operated railroad was upheld.[2]

3. Among the recognized bases for determining what is essentially a "public business," as distinguished from a "private business," are: (1) Public grants of privileges; (2) monopolistic restraints on competition; (3) economic dependence of the community upon the service.[3]

**Editorial Note.*—Because of the renewed interest in public utility regulation the readers of the *Journal* are given the interesting suggestions of Mr. Richberg on this subject, as presented to the New York State Commission on Revision of Public Service Commission Law, January 13, 1930. The editors are indebted to Mr. Richberg for his courtesy in submitting this manuscript for publication in the *Journal*, and in authorizing the omission of part of the manuscript. The omitted portion is summarized on page 3.

[1] *Smyth v. Ames*, 169 U. S. 466 (1898), *Louisville & Nashville Railroad v. Kentucky*, 183 U. S. 503 (1901); *Donovan v. Pennsylvania Co.*, 199 U. S. 279 (1905): *Smith v. I. C. C.*, 245 U. S. 33 (1917).

[2] *Milheim v. Moffat Tunnel Imp. Dist.* 262 U. S. 710 (1923).

[3] See *German Alliance Insurance Company v. Lewis*,

(Footnote 3 continued on page 2)

4. Under modern conditions the furnishing of either transportation, communication, light, heat, power or water is essentially a "public business." Distinctions between the public obligations and functions of those furnishing these public services are largely historical and academic.

5. All persons and corporations who undertake to operate those enterprises which are commonly classed as "public utilities" are therefore to be regarded as public agents engaged in transacting public business and performing a function of the state.

6. These public services are being produced in two ways. (1) A governing body may select public officials to use public money to provide a public service. Thus the national government furnishes postal service; states build highways; cities construct water works. (2) A governing body may authorize private persons to use private money to provide a public service. Thus a city or state authorizes a corporation to furnish telephone service; to build a railroad; to construct an electric power and light system.

7. The public business to be transacted and the public obligations of the operators are not different because in one case the governing body *selects* the operators, and in the other case *authorizes* the operators, to perform a function of the state. The only difference lies, not in the *object* of exercising state authority, but in the *method* of exercising it.

8. The method of private ownership and operation of public utilities produces at once a certain control of public business by private persons for private purposes. Private property is invested in a public service enterprise in order to make profits which are reasonably assured because a monopolistic power to satisfy public needs has been established. Managers are selected for the purpose of making such profits who thereby are subjected to conflicting obligations: First, as *private* agents they are obligated to make as much money as possible for their employer. Second, as *public* agents, they are obligated not to make any more money than is "reasonable" out of handling public business.

9. Private control of public business is obviously fraught with grave dangers. To farm out the collection of taxes, and to give private persons an interest in collecting public revenues, would quickly undermine the foundations of government, as shown in the historic experience of other nations.[4] Yet the privately owned public utilities of the United States today collect an annual revenue which is several billion dollars larger than the total of taxes collected annually by our national, state, and local governments combined. The average citizen is as much compelled by daily needs to pay these charges for public utility services furnished by public agents, as to pay his lesser charges for other public services furnished by public officials.

10. This private control of public business has been utilized because of our belief that better service (and possibly cheaper service) would be furnished by men selected by private investors, and selected because of money-making ability or financial rating, than by men selected through a political machinery, and selected for their vote-getting ability or political rating. We have acted on the conviction that the incentive of private profit provides a better assurance

(Continued from page 1)

233 U. S. 389 (1914); *Union Dry Goods Company v. Georgia Public Service Commission*, 248 U. S. 372 (1919); *Wolff Packing Company v. Court of Industrial Relations*, 262 U. S. 522 (1923); *Tyson & Bro. v. Banton* 273 U. S. 418 (1926).

[4] See Brooks Adams, *Railways as Public Agents* (1910).

of efficient handling of public business than the incentive of public honor, or political preferment. But we have also recognized that this incentive of private profit must be curbed or public interest will be sacrificed, particularly when the natural curb of competition is not operative.

11. Thus the foundation and primary purpose of public utility regulation must be recognized as the necessity for preventing the making of an unfair profit out of public business by a public agent, who is privately selected for the very purpose of making as much as can be safely and regularly extracted from operating public business. Referring to business "affected with a public interest" but not traditionally regulated, the Supreme Court stated that "the thing which gave the public interest was the indispensable nature of the service and the exorbitant charges and arbitrary control to which the public might be subjected without regulation".[5]

The foregoing summary statement of the nature of the problem of public utility regulation is presented so as to make clear both the basis upon which the success of regulation must be tested and the primary objective of any corrective measure. It is quite the fashion nowadays to argue that the consumers are largely interested in good service and that if public utility operators are freed from unwise governmental interference they will naturally adopt policies tending to improve their service and they will keep down their charges so as to induce as much consumption as possible. According to such theories apparently regulation should serve largely to prevent discriminations and to eliminate wasteful competition; and public officials should concern themselves very little with rate reductions. In truth we have observed that the rate regulating powers of many of the state commissions have been little used in recent years, while public utilities subject to them have been reaping extortionate profits, brilliantly visible in stock market quotations.

Therefore, I desire to emphasize that if unfair profits cannot be speedily uncovered and excessive rates cannot be promptly reduced, no other regulatory successes can compensate for this failure. No possible benefits arising from the private selection of operators of public business can compensate for the harm of unregulated profiting out of public needs. "It is as vital that the State should retain its control of tolls upon public highways as it is that it should not surrender or fetter its power of taxation."[6] A government impotent to prevent this will become the creature instead of the creator of its public agents. Its advance in social standards, its ability to promote the general welfare, will depend and wait upon the avarice of those who have been enabled to exercise sovereign powers for private enrichment. That is the prospect which calls most urgently for public understanding and corrective action today.

Editorial Note: (Mr. Richberg then points out that present regulatory methods are inadequate to protect public interests. Even the Interstate Commerce Commission is only partly successful; the state commissions fail because of (1) the demoralizing influence of mercenary politics; (2) the crippling restraint of constant judicial interference; (3) the inherent limitations of state sovereignty.

The power of the privately owned public services to gather and spend in excess of ten billion dollars annually, is a social and political force of unparalleled influence and a menace to popular sovereignty. "The basis for this anti-social power to operate public business for private enrichment lies in our failure to make a clear legal distinction between a private property right in *money and tangible property* which is used in public business, and a private property right in the public *business* itself.")

[5] *Wolff Packing Company v. Court of Industrial Relations, supra* n. 3.

[6] *Covington, etc., Railroad Company v. Sandford*, 164 U. S. 578 (1896).

Proprietary Rights

It is clear that the forces which are defeating public interests in public utility regulation are produced by the proprietary rights of the "owners" of these utilities. It is the enormous value of these rights which provides a steady flow of millions of dollars to support the attack of these anti-public forces. It is the legal force and strength of these proprietary rights, embedded in the "law of the land," which makes the utility operators' defense against effective regulation quite impregnable. And so it becomes clear that only after eliminating these proprietary rights from public utilities will it be possible to regulate them in the public interest. This conclusion does not mean that the use of private capital, or the control of private capital, in constructing and operating public utilities, must be eliminated.

It means only that the legal rights of proprietary capital and the resulting proprietary control of public business have been found to be inherently hostile to adequate public control. It means only that no one should be given an uncontrollable legal right to manage the operation and development of a public business for the primary purpose of private profit.

Returning to the previous example of public control and the use of private capital, it will be noted that private investment in the bonds of a city water works does not create an anti-public force in public business. It may be conceded that if such investors had a voice —even a dominant voice—in the selection of the management, the public service might be benefitted. But the management of a public utility so selected by private capital could be subjected to effective public regulation. Public agents so chosen would have no legitimate interest in opposing regulatory orders unless the security of the bondholders' principal or interest were thereby endangered. And the "property rights" of the investors would be fixed and limited and could not be constantly extended and utilized to thwart regulation of public business in the public interest.

Our government is not engaged in making money. The production of wealth is largely private business under our economic system, which, in my opinion as a confirmed individualist, is most desirable. Therefore, even those who advocate public ownership and operation of public utilities (excluding communists) must anticipate private investment in such enterprises, by private purchase of either general government bonds or bonds issued for and secured specifically by public service operations. Such investors would have a keen interest in selecting capable managers of these businesses and their voting power might be expected to produce more efficient managers than those likely to arise out of popular elections under our present political machinery. Certainly many of the present probable benefits of private ownership and operation would be retained in substituting the selection of management by loan capital for the present selection by proprietary capital. Certainly many of the present undoubted evils of private ownership and many of the anticipated evils of public ownership would be eliminated by this change.

It may be noted that votes for bondholders have recently been advocated to correct irresponsible control by stockholders who contribute only a small part of the total investment in an enterprise. The legality and desirability of votes from bondholders have been maintained on high authority for many years.[7]

[7] See W. Z. Ripley, *Main Street and Wall Street*, (Boston: Little, Brown & Co., 1927), p. 102.

Mr. Ripley points out that the Model Companies Act drafted for the State of New York (about 1900) made a provision for votes for bondholders and that the present corporate code of Delaware makes a like provision.

Can Suggested Principles be Practically Applied?

But if the principles so far suggested are accepted as theoretically sound, the following questions promptly arise: (1) Is it practical to eliminate proprietary capital from new public service enterprises? (2) Is it possible to compel the elimination of proprietary capital from existing public utilities? Obviously the second question raises more difficult problems than the first. But it is my opinion that these principles can be practically applied in the regulation of both existing and new public service enterprises, just as soon and as rapidly as there is general recognition that private control of public business for private profit is destroying the foundations of our government and rendering the American people impotent to govern themselves.

A nation which has paid the cost of a civil war to maintain its federal sovereignty, and has undertaken the prodigious experiment of national prohibition, is clearly capable of any measure of reform essential to preserve self-government and to advance the general welfare. It will also be noted that neither property rights in human beings, nor property rights in a business regarded as evil, availed to stop the demand that men be freed from the domination of other men and from the lash of their own appetites. There is some reason for thinking that those who today are seeking increased power to dominate the daily lives of the American people are happily hastening the day when their present anti-social powers will be entirely destroyed.

Each community can play its part in recapturing public control of public service. The leadership of the great State of New York would, of course, give tremendous impetus to such a movement throughout the nation.

A Practical Program

Nothing more than suggestions to indicate the nature of a practical program to effect the elimination of proprietary capital rights in public utilities, would be appropriate or sensible from me on this occasion. The interplay of many minds, the coordination of the experience, wisdom and exact knowledge of many legislators, financiers, engineers, lawyers, and accountants, would be needed to produce the detailed machinery of a necessary reorganization of this public business. But I may suggest that a practical program can be developed along the following lines:

I. All public service corporations authorized to do business in the State should be organized under laws providing that the proprietary capital (which may be nominal) shall be furnished by or donated to the State.

II. The appropriate regulatory commission should be authorized to name a minority (possibly one-third) of the directors, who might well be chosen from nominees offered by economic organizations of users of service, such as merchants' and manufacturers' associations, chambers of commerce, labor unions, tenants and consumers leagues, etc.

III. The majority of the directors should be chosen by cumulative voting of those contributing capital for a fixed compensation, probably represented by bonds, debentures, and notes of varying securities and corresponding rates of return. In cases of default there would

be provision for either a reorganization under the same law or, in case of necessary abandonment of the public franchise and sale of the properties, there would be fixed priorities in the satisfaction of obligations. If a combination of public and private investment were required, or any public guarantee of obligations, the public direct control of the management would be correspondingly increased. Increased security to private investors would thus be complemented by decreased private control.

IV. In order to induce existing public service companies to reorganize under the law, it might be provided: (1) That no authority to extend an existing public service and no further public grants of any character should be yielded thereafter, except to a corporation organized under the new law and voluntarily submitting to its requirements; (2) that no direct competition would be authorized by one public stock corporation with another; but (3) that public stock corporations could and would be authorized to compete with private stock corporations or to supplement or extend the service furnished by such private corporations; or (4) that public stock corporations could be authorized to condemn the physical properties of existing private stock corporations;[8] or (5) in the event of persistent opposition by unreconstructed and essential public utilities a constitutional amendment could make the operation of a public utility service by a private stock corporation unlawful on and after a fixed date. The effect of such an amendment upon private property rights would be less harmful than the effect of the prohibition amendment; its enforcement would be attended with much less difficulty; and the community benefit would be at least equally certain.

V. Every public service enterprise organized under the law should be required to transact all of its authorized public business through the one corporation and required not to engage in any other business.

VI. All the directors and managing officials of a public stock corporation should be designated as public agents; but the majority directors, who would be selected by private investors, and the managing officials of the corporation, should be subject only to the general regulations or specific orders issued by the regulatory commission after public hearings. Such regulations and orders would be reviewable by the courts as at present in order to determine their conformity with statutory or constitutional requirements and limitations. The minority directors would be special agents of the regulatory commission having access to all corporate records and furnishing information to the commission at any time upon the corporate operations and transaction of business. They would be subject to removal by the commission for acts or omissions in violation of law, or the order of the commission, or for failure to do anything clearly required to protect the public interest, or because of other evidence of incapacity for public responsibility.

VII. All expenses of regulation should be apportioned and accounted for as operating cost of the regulated enterprises. Thus consumers would pay for their own protection, which would be an improvement on the present practice of compelling them to pay for their own exploitations.

The foregoing suggestions have been presented, not as a finished program, not even as inflexible items in such a program, but as concrete indications

[8] This alternative is one of dubious efficacy in view of the Supreme Court's definitions of private property "values" in public utilities.

that it is possible to eliminate anti-public control of public utilities and to establish effective public control. I could not stultify myself by advocating only a patchwork improvement of the present system of regulation, well knowing that ultimately a radical reorganization must be undertaken. It would be unworthy of the serious character of this investigation to evade the conclusions of a long and searching analysis of the nature, source, and growth of an intolerable private power to control public business and to manipulate government itself—in the face of notorious and far-reaching abuses of such power that have brought about the present and many similar inquiries.

But, as an active participant in public affairs, I am also aware that public opinion gathers momentum slowly and that rapid progress must wait upon accumulation of public demand for adequate reform. So I have sought to offer first the objectives of a permanent program; and at the same time I desire to point out that definite progress can be made in the right direction by minor changes in existing law which may be regarded as preliminary steps in a long-time and comprehensive advance toward ultimate adequate control of public business.

1. So long as private property interests exist in public utilities, in necessary conflict with public interests, there should be at least a clear separation of public business from private business. The public agents selected to manage a public business should not be permitted to act also as private agents to enrich security holders, nor permitted to spend public revenues for such private purposes. If security holders desire to oppose regulatory measures, to influence politics, or otherwise to protect or promote private property rights, they should be required to employ private agents and to pay their expenses out of their private purses. The managers of a public business should be solely public trustees. The revenues of public business should be public funds, having no private character until paid over to private security holders as compensation for private investment in a public enterprise.[9] The expenses of regulation, but none of the expenses of defeating regulation, should be paid out of the operating revenues of public utilities.

2. No public utility corporation should be permitted to engage in any other business except furnishing public service.

3. Public regulation can be made effective, economical, and prompt only when adequate and detailed knowledge of the handling of public business is possessed at all times by the regulatory officials. This requires continuous participation in management by public agents who are unembarrassed by private obligations or interests. Such public directors or supervisors should be appointed for each public service company, as representatives of the regulatory commission. They should have no managerial authority except to insist on compliance with public regulations. Their intimate knowledge should make possible the settlement of minor complaints without formal hearings. On larger issues they should be enabled to report the facts as promptly and accurately as an operating official could report to his board of directors. At present the intimate public contact essential to protect the multitudinous interests of consumers is conspicuously lacking; and the cost of accumulating

[9] The doctrine of the *Dayton-Goose Creek Case*, (263 U. S. 456, (1924)) should be extended. The doctrine of the *Southwestern Bell Case* (262 U. S. 276, (1923)) and the *New York Telephone Case* (271 U. S. 23, (1926)) should be abrogated.

adequate evidence upon large issues is commonly prohibitive.

4. Officers, directors or operating officials of public utilities should be forbidden to use any secret means for controlling or influencing public officials or public opinion in the matter of public regulation; and the wilful, persistent violation of this prohibition should disqualify the violator from holding any such position in the future. This would permit candid and honorable efforts to improve and to protect a public service but would stigmatize private objects and secret methods as breaches of public trust.

The main purpose of the foregoing suggestions is to point out that the ownership and operation of a public business should be made legally a public trust. Until the legal obligations of a trusteeship are established and enforced, the conflicting demands of acknowledged legal obligation to investors and moral obligations to consumers will continue to swell the current output of hypocrisy, evasion, and corruption that makes public utility operations today such an unpleasant and menacing spectacle.

Conflict Between State and Federal Regulations

In consideration of all the suggestions so far advanced there may properly be raised a question concerning state and national sovereignty. What powers of a state can be exercised that may not be thwarted by a partial or inconsistent exercise of federal authority? Here it must be evident that a private interest in the control of public business complicates the political adjustment of a perennially difficult problem. Facing the threat of effective state control or federal control, private interests can play one group of public officials against another, or subject themselves so far as possible to the least energetic or most favorable sovereignty. Clearly a machinery for coordinating our regulatory state and federal powers is essential yet difficult to achieve against the opposition of private interests fortified with public grants of privilege and an accumulation of legally enforceable property rights.

If, however, a majority of the states adopt consistent principles of public utility regulation and impose legal obligations of public trusteeship, a consistent federal policy must follow through the dominance of such a majority in national legislation. The agencies of public service, whether created by state or federal law, if held to similar obligations, cannot gain immunity from control merely by eluding one jurisdiction. If a state power of regulation is disputed, it can be required that appeal to the federal regulatory power must first be made and that a conflicting authority must be actually exerted before the courts shall be called upon to decide which authority shall prevail. The state and federal commissions with a consistent purpose could easily coordinate their activities as is being done today to some extent in the regulation of the railroads.

Holding Companies

The use of the holding company device has raised up a new set of problems presenting a choice between two possible exercises of public authority. The Interstate Commerce Commission has recently called attention to the menace to public interests by holding companies. But the method and manner of legislative protection through any regulation of such companies is not easy to work out. Perhaps the task is impractical. It may be necessary to outlaw such corporate activities as conspiracies to in-

terfere with public regulation of public business. The distinction between *ownership* for investment and for control may not always be easy to draw. But the *exercise* of proprietary control is not hard to detect.

It is not my purpose to offer any suggestion for the solution of this particular problem, except to point out that it is one of the many and increasing problems which arise out of the fundamental error of permitting private proprietary rights in a public business. The sooner such rights are eliminated the sooner will the control of public service in the public interest become a reasonable possibility. The longer such rights are encouraged the longer will anti-public control of public business be maintained and the more difficult will become the eventually necessary recapture of public control.

Conclusion

The gains of 300 years' development of the natural resources of America, the gains of 150 years' development of the institutions of self-government, the gains of the industrial revolution and the development of machine power for the service of human beings, may be made available to enrich the lives of one hundred and twenty million people and to endow their children with an even greater wealth, only if we can exercise the essential powers of self-government and control of public business of the nation for the common good. We have ample evidence that if the public services of transportation, communication, light, heat, power and water remain subject to proprietary control for private profit, the great masses of the people will steadily lose control of their government and steadily lose control of their standards of daily living. Their habits of living and thinking, their freedom to work for themselves and to think for themselves will tend to disappear in individual subjection to the all-powerful influence of great enterprises, which on the producing side will measure their incomes and on the consuming side will determine their expenditures.

There is no exaggeration in the warning of one of our most eminent and conservative economists, written in 1911: "It is not too much to say that the future of democracy will depend on its success in dealing with the problems of public ownership and regulation."[10]

There is no exaggeration in asserting that the problem presented to this Commission is nothing less than the recovery of our vanishing power of self-government. It cannot be solved by any timid fumbling and tinkering with a regulatory machinery of proved incompetence. It may be solved by a vigorous reassertion of the necessity of public control of public business and a courageous exercise of the supreme authority of the state to protect the general welfare and to preserve the institutions of free government.

[10] F. W. Taussig, *Principles of Economics* (New York: The Macmillan Company, 1911), Vol II, p. 411.

THE OPERATION OF THE PITTSBURGH GRADED TAX PLAN

By LAWRENCE R. GUILD

Taxation in Pittsburgh. For many years Pittsburgh has been accustomed to different tax rates on different forms of real property. As far back as 1867 an Act of the Legislature provided that the City should designate land used for agricultural purposes as "rural," and that this rural land should be assessed at two-thirds of the rate applied to the "urban" land of the City. In 1876 a new enactment provided for a new classification into "agricultural," "suburban," and "urban" groups, upon which the tax rates were to be, respectively, one-half, two-thirds, and one. This arrangement was kept until 1913, when the present law was enacted.

This law provides that for cities of the second class (Pittsburgh and Scranton), the classification should be abolished as far as land was concerned, and a uniform rate established. A distinction should be made, however, between land and improvements upon land, so that a separate rate could be made for each. With this distinction made, the tax rate upon buildings was to be gradually reduced until it was but 50% of the rate upon land values, and at this point it would remain. As a matter of administration, the plan of adjustment was set as follows:

Year	Ratio of Rate on Buildings to Rate on Land
1915.....	90%
1916–1918.....	80%
1919–1921.....	70%
1922–1924.....	60%
1925 and after.....	50%

This is the so-called Graded Tax Plan in use in the City of Pittsburgh at the present time. It should be noted that the law is nearly 17 years old, but that the full effect of the scheme has been felt for five years only. It must also be kept in mind that this plan applies to the City only, and not to the numerous suburbs and extensive industrial area usually referred to as the Pittsburgh District. The efforts to bring about a city-county metropolitan merger may change this in the not-so-distant future, either to extend or discontinue the plan; so far, this merger has not been accepted by the voters, and the area under the graded tax remains somewhat smaller than might be desired for purposes of a study of the results.

To complete the picture, it must be mentioned that Pittsburgh levies no other municipal taxes—the school levy and the county taxes being administered by other bodies, and levied upon land and buildings at common rates without classification. Machinery and capital equipment are not taxed, nor is personal property. Thus Pittsburgh is using a tax system calculated to put the larger burden upon land values, without adopting an out-and-out single tax.

The Principle of the Graded Tax. As it stands at present, the graded tax is of greater interest as an experiment in social economics than as a radical departure in public finance. No particular difficulty arises in obtaining an adequate public income from those sources which have carried most of the burden of the general property tax, as it is usually administered in the United States. But by placing the heavier share upon land, as distinct from improvements, the graded tax shows a definite relationship to the

single tax program of land value taxation.

In a recent article in this *Journal*, discussing the single tax, the following suggestions were made:[1]

a. A region with a tax upon land values only would have an economic advantage over regions taxing capital as well; this is because the tax could not be shifted, so that after its first incidence the investor would find his investment unburdened by taxes.
b. Land held vacant by speculators would be forced into use.
c. A greater supply of capital would become available for labor with resulting greater efficiency and higher wages; investment and home-ownership would also be made easier for the wage-earner.
d. If the speculative holding of land in idleness is advantageous, the benefits would thus be given to those who make them possible, or at least those who gained directly would also feel the burden.

Dr. Brown is here writing of a tax upon land values only, and yet his suggestions are almost identical with those advanced by the proponents of the graded tax. The claim is made that the light burden thus placed upon industry is a great encouragement to industrial progress; that vacant land will be built up; that high rents will succumb to the increased number of houses; that better buildings will be erected; that the working man will pay lower rents and still receive higher wages; and that the mill-owner will have lower overhead costs.

Without stopping to examine into the validity of the economics underlying these ideas, it may be admitted that a tax which can accomplish all, or even a few, of these things is a desirable tax; provided it does not entail offsetting objects which are more undesirable. Those opposed to the plan offer one basic argument, which is that the supposed results are not forthcoming, or that if some of them do appear it is because of other causal factors.

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Administration. Before attempting to evaluate the potency of such a graded tax law, it is necessary to discover, if possible, whether or not the law has received an administration calculated to promote or to impede the expected effects. To put it bluntly, if the law contemplates a burden on land values double that placed upon improvement values, has the assessment machinery assured that a fair balance has been maintained between land valuations and building valuations? This phase of the matter is far from foolproof, and an unsympathetic administration could do much to offset the inequality of the rates.

Two things suggest that this possibility has a basis in fact. The first is a Report of a Committee on Taxation Study to the Council of the City of Pittsburgh, which contains the statement that when the Graded Law went into effect "there was a noticeable tendency on the part of the assessors to raise the assessments on buildings to offset the reduction in the tax rate on buildings." Probably this Committee was in possession of sufficient data to make this statement highly significant.

The second point is seen by studying the figures of assessed valuations since 1908, which are shown in Table I. The following facts may be summarized:

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Increase in building assessment valuation, 1922–1928,—53.9%

[1] H. G. Brown, "Should Land Values Be Taxed More Heavily?" 4 *Journal of Land & Public Utility Economics* 375–392 (November, 1928).

be provision for either a reorganization under the same law or, in case of necessary abandonment of the public franchise and sale of the properties, there would be fixed priorities in the satisfaction of obligations. If a combination of public and private investment were required, or any public guarantee of obligations, the public direct control of the management would be correspondingly increased. Increased security to private investors would thus be complemented by decreased private control.

IV. In order to induce existing public service companies to reorganize under the law, it might be provided: (1) That no authority to extend an existing public service and no further public grants of any character should be yielded thereafter, except to a corporation organized under the new law and voluntarily submitting to its requirements; (2) that no direct competition would be authorized by one public stock corporation with another; but (3) that public stock corporations could and would be authorized to compete with private stock corporations or to supplement or extend the service furnished by such private corporations; or (4) that public stock corporations could be authorized to condemn the physical properties of existing private stock corporations;[8] or (5) in the event of persistent opposition by unreconstructed and essential public utilities a constitutional amendment could make the operation of a public utility service by a private stock corporation unlawful on and after a fixed date. The effect of such an amendment upon private property rights would be less harmful than the effect of the prohibition amendment; its enforcement would be attended with much less difficulty; and the community benefit would be at least equally certain.

V. Every public service enterprise organized under the law should be required to transact all of its authorized public business through the one corporation and required not to engage in any other business.

VI. All the directors and managing officials of a public stock corporation should be designated as public agents; but the majority directors, who would be selected by private investors, and the managing officials of the corporation, should be subject only to the general regulations or specific orders issued by the regulatory commission after public hearings. Such regulations and orders would be reviewable by the courts as at present in order to determine their conformity with statutory or constitutional requirements and limitations. The minority directors would be special agents of the regulatory commission having access to all corporate records and furnishing information to the commission at any time upon the corporate operations and transaction of business. They would be subject to removal by the commission for acts or omissions in violation of law, or the order of the commission, or for failure to do anything clearly required to protect the public interest, or because of other evidence of incapacity for public responsibility.

VII. All expenses of regulation should be apportioned and accounted for as operating cost of the regulated enterprises. Thus consumers would pay for their own protection, which would be an improvement on the present practice of compelling them to pay for their own exploitations.

The foregoing suggestions have been presented, not as a finished program, not even as inflexible items in such a program, but as concrete indications

[8] This alternative is one of dubious efficacy in view of the Supreme Court's definitions of private property "values" in public utilities.

that it is possible to eliminate anti-public control of public utilities and to establish effective public control. I could not stultify myself by advocating only a patchwork improvement of the present system of regulation, well knowing that ultimately a radical reorganization must be undertaken. It would be unworthy of the serious character of this investigation to evade the conclusions of a long and searching analysis of the nature, source, and growth of an intolerable private power to control public business and to manipulate government itself—in the face of notorious and far-reaching abuses of such power that have brought about the present and many similar inquiries.

But, as an active participant in public affairs, I am also aware that public opinion gathers momentum slowly and that rapid progress must wait upon accumulation of public demand for adequate reform. So I have sought to offer first the objectives of a permanent program; and at the same time I desire to point out that definite progress can be made in the right direction by minor changes in existing law which may be regarded as preliminary steps in a long-time and comprehensive advance toward ultimate adequate control of public business.

1. So long as private property interests exist in public utilities, in necessary conflict with public interests, there should be at least a clear separation of public business from private business. The public agents selected to manage a public business should not be permitted to act also as private agents to enrich security holders, nor permitted to spend public revenues for such private purposes. If security holders desire to oppose regulatory measures, to influence politics, or otherwise to protect or promote private property rights, they should be required to employ private agents and to pay their expenses out of their private purses. The managers of a public business should be solely public trustees. The revenues of public business should be public funds, having no private character until paid over to private security holders as compensation for private investment in a public enterprise.[9] The expenses of regulation, but none of the expenses of defeating regulation, should be paid out of the operating revenues of public utilities.

2. No public utility corporation should be permitted to engage in any other business except furnishing public service.

3. Public regulation can be made effective, economical, and prompt only when adequate and detailed knowledge of the handling of public business is possessed at all times by the regulatory officials. This requires continuous participation in management by public agents who are unembarrassed by private obligations or interests. Such public directors or supervisors should be appointed for each public service company, as representatives of the regulatory commission. They should have no managerial authority except to insist on compliance with public regulations. Their intimate knowledge should make possible the settlement of minor complaints without formal hearings. On larger issues they should be enabled to report the facts as promptly and accurately as an operating official could report to his board of directors. At present the intimate public contact essential to protect the multitudinous interests of consumers is conspicuously lacking; and the cost of accumulating

[9] The doctrine of the *Dayton-Goose Creek Case*, (263 U. S. 456, (1924)) should be extended. The doctrine of the *Southwestern Bell Case* (262 U. S. 276, (1923)) and the *New York Teiephone Case* (271 U. S. 23, (1926)) should be abrogated.

adequate evidence upon large issues is commonly prohibitive.

4. Officers, directors or operating officials of public utilities should be forbidden to use any secret means for controlling or influencing public officials or public opinion in the matter of public regulation; and the wilful, persistent violation of this prohibition should disqualify the violator from holding any such position in the future. This would permit candid and honorable efforts to improve and to protect a public service but would stigmatize private objects and secret methods as breaches of public trust.

The main purpose of the foregoing suggestions is to point out that the ownership and operation of a public business should be made legally a public trust. Until the legal obligations of a trusteeship are established and enforced, the conflicting demands of acknowledged legal obligation to investors and moral obligations to consumers will continue to swell the current output of hypocrisy, evasion, and corruption that makes public utility operations today such an unpleasant and menacing spectacle.

Conflict Between State and Federal Regulations

In consideration of all the suggestions so far advanced there may properly be raised a question concerning state and national sovereignty. What powers of a state can be exercised that may not be thwarted by a partial or inconsistent exercise of federal authority? Here it must be evident that a private interest in the control of public business complicates the political adjustment of a perennially difficult problem. Facing the threat of effective state control or federal control, private interests can play one group of public officials against another, or subject themselves so far as possible to the least energetic or most favorable sovereignty. Clearly a machinery for coordinating our regulatory state and federal powers is essential yet difficult to achieve against the opposition of private interests fortified with public grants of privilege and an accumulation of legally enforceable property rights.

If, however, a majority of the states adopt consistent principles of public utility regulation and impose legal obligations of public trusteeship, a consistent federal policy must follow through the dominance of such a majority in national legislation. The agencies of public service, whether created by state or federal law, if held to similar obligations, cannot gain immunity from control merely by eluding one jurisdiction. If a state power of regulation is disputed, it can be required that appeal to the federal regulatory power must first be made and that a conflicting authority must be actually exerted before the courts shall be called upon to decide which authority shall prevail. The state and federal commissions with a consistent purpose could easily coordinate their activities as is being done today to some extent in the regulation of the railroads.

Holding Companies

The use of the holding company device has raised up a new set of problems presenting a choice between two possible exercises of public authority. The Interstate Commerce Commission has recently called attention to the menace to public interests by holding companies. But the method and manner of legislative protection through any regulation of such companies is not easy to work out. Perhaps the task is impractical. It may be necessary to outlaw such corporate activities as conspiracies to in-

terfere with public regulation of public business. The distinction between *ownership* for investment and for control may not always be easy to draw. But the *exercise* of proprietary control is not hard to detect.

It is not my purpose to offer any suggestion for the solution of this particular problem, except to point out that it is one of the many and increasing problems which arise out of the fundamental error of permitting private proprietary rights in a public business. The sooner such rights are eliminated the sooner will the control of public service in the public interest become a reasonable possibility. The longer such rights are encouraged the longer will anti-public control of public business be maintained and the more difficult will become the eventually necessary recapture of public control.

Conclusion

The gains of 300 years' development of the natural resources of America, the gains of 150 years' development of the institutions of self-government, the gains of the industrial revolution and the development of machine power for the service of human beings, may be made available to enrich the lives of one hundred and twenty million people and to endow their children with an even greater wealth, only if we can exercise the essential powers of self-government and control of public business of the nation for the common good. We have ample evidence that if the public services of transportation, communication, light, heat, power and water remain subject to proprietary control for private profit, the great masses of the people will steadily lose control of their government and steadily lose control of their standards of daily living. Their habits of living and thinking, their freedom to work for themselves and to think for themselves will tend to disappear in individual subjection to the all-powerful influence of great enterprises, which on the producing side will measure their incomes and on the consuming side will determine their expenditures.

There is no exaggeration in the warning of one of our most eminent and conservative economists, written in 1911: "It is not too much to say that the future of democracy will depend on its success in dealing with the problems of public ownership and regulation."[10]

There is no exaggeration in asserting that the problem presented to this Commission is nothing less than the recovery of our vanishing power of self-government. It cannot be solved by any timid fumbling and tinkering with a regulatory machinery of proved incompetence. It may be solved by a vigorous reassertion of the necessity of public control of public business and a courageous exercise of the supreme authority of the state to protect the general welfare and to preserve the institutions of free government.

[10] F. W. Taussig, *Principles of Economics* (New York: The Macmillan Company, 1911), Vol II, p. 411.

THE OPERATION OF THE PITTSBURGH GRADED TAX PLAN

By LAWRENCE R. GUILD

Taxation in Pittsburgh. For many years Pittsburgh has been accustomed to different tax rates on different forms of real property. As far back as 1867 an Act of the Legislature provided that the City should designate land used for agricultural purposes as "rural," and that this rural land should be assessed at two-thirds of the rate applied to the "urban" land of the City. In 1876 a new enactment provided for a new classification into "agricultural," "suburban," and "urban" groups, upon which the tax rates were to be, respectively, one-half, two-thirds, and one. This arrangement was kept until 1913, when the present law was enacted.

This law provides that for cities of the second class (Pittsburgh and Scranton), the classification should be abolished as far as land was concerned, and a uniform rate established. A distinction should be made, however, between land and improvements upon land, so that a separate rate could be made for each. With this distinction made, the tax rate upon buildings was to be gradually reduced until it was but 50% of the rate upon land values, and at this point it would remain. As a matter of administration, the plan of adjustment was set as follows:

Year	Ratio of Rate on Buildings to Rate on Land
1915.....	90%
1916–1918.....	80%
1919–1921.....	70%
1922–1924.....	60%
1925 and after.....	50%

This is the so-called Graded Tax Plan in use in the City of Pittsburgh at the present time. It should be noted that the law is nearly 17 years old, but that the full effect of the scheme has been felt for five years only. It must also be kept in mind that this plan applies to the City only, and not to the numerous suburbs and extensive industrial area usually referred to as the Pittsburgh District. The efforts to bring about a city-county metropolitan merger may change this in the not-so-distant future, either to extend or discontinue the plan; so far, this merger has not been accepted by the voters, and the area under the graded tax remains somewhat smaller than might be desired for purposes of a study of the results.

To complete the picture, it must be mentioned that Pittsburgh levies no other municipal taxes—the school levy and the county taxes being administered by other bodies, and levied upon land and buildings at common rates without classification. Machinery and capital equipment are not taxed, nor is personal property. Thus Pittsburgh is using a tax system calculated to put the larger burden upon land values, without adopting an out-and-out single tax.

The Principle of the Graded Tax. As it stands at present, the graded tax is of greater interest as an experiment in social economics than as a radical departure in public finance. No particular difficulty arises in obtaining an adequate public income from those sources which have carried most of the burden of the general property tax, as it is usually administered in the United States. But by placing the heavier share upon land, as distinct from improvements, the graded tax shows a definite relationship to the

single tax program of land value taxation.

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On the face of these figures, the tendency seems to have been to undervalue land, and so to offset the excess tax. It is strange that, in the very period when prices in general were rising most rapidly. land valuations in Pittsburgh stood still. Even allowing for a certain amount of lag as natural, one is forced to conclude that land must have been more undervalued in 1928 than it was 15 years before. It is hard to see how the rise of the general price level, which is now stabilized at a point more than 50% above that of 1913, when added to the natural increase of land values accompanying normal city growth, can add but 20% to the value of land in that City.

Conclusion of the study at this point is not necessary, however, because the last six-year period has seen such increased land valuations as have occurred, and it therefore seems feasible to view the results of this period to see if any of the effects of this tax method can be isolated. Since these years are also the years in which the ratio has been six-tenths and then five-tenths, any tendencies which do exist should appear more clearly than in the earlier years when the differential was smaller.

TABLE I. ASSESSED VALUATIONS OF LAND AND BUILDINGS IN PITTSBURGH, 1909–1928.

Year	Total	Land	Buildings*
1908	$ 704,271,761		
1909	709,905,718		
1910	751,236,965		
1911	755,818,383		
1912	749,619,410		
1913	758,366,910		
1914	762,928,810	$480,858,940	$282,069,870
1915	771,024,310	480,191,010	290,833,300
1916	782,563,920	483,316,070	299,247,850
1917	792,942,840	482,149,040	310,793,800
1918	802,571,410	482,132,590	320,438,820
1919	806,020,730	480,131,130	325,889,600
1920	814,507,550	479,850,740	334,658,810
1921	829,848,120	480,461,700	349,386,420
1922	868,177,930	487,939,620	380,238,310
1923	928,864,800	532,688,420	396,176,380
1924	951,157,190	530,675,130	420,482,780
1925	988,830,120	547,475,280	441,354,840
1926	1,014,116,820	548,219,170	465,897,650
1927	1,060,013,550	554,616,950	505,396,600
1928	1,108,842,440	573,738,300	535,104,140

*The increase of assessed valuations of buildings may be interpreted as an increased burden on the buildings or it may indicate an increase in building activity. Evidence seems to point to the first of these interpretations. For example, building permits in 1923 totaled about $19,000,000; building valuations in 1924 increased more than $24,000,000 over 1923. This would seem to point to a tendency toward heavier valuation of buildings. Furthermore, examination of Table II, *infra*. p. 13 shows an actual lessening of building activity in 1924 compared with 1923.

The failure of land valuations to increase as much as building valuations might be explained as an indication of the desired result of the plan. That is, the effect of a direct tax upon land values should not be to raise them but to lower them. The tax does not increase the productivity of the land, and so does not increase the demand for it; on the other hand, it does burden the income from the land, without causing a decrease in the total supply. This causes the value, which is derived by capitalizing the income, to fall proportionately. The effects of this ramify in all directions, especially with respect to the forces influencing the alternative uses of the land. In the present case, the chief result of this would seem likely to be the attraction into the City of industries and persons who might otherwise locate farther out. This is counteracted by the fact that taxes on a flat-rate basis farther out are still usually lower than those in the City.

That this is not the explanation of the failure of land valuations to keep pace with the times seems evident from the nature of the methods of assessment. It is almost too much to hope that assessors, in general unfamiliar with the theory or operation of the single tax idea, would discover the decrease in land values so quickly. The failure of the tax duplicate to rise is more logically explained as the usual lag of tax assessments behind price changes. Land values would be less likely to show change than buildings, since building costs would be higher and this fact easily observed.

Possibly the entire burden of the tax was discounted at the time of the adoption of the law; this would be the principle of the matter. But economic adjustments are seldom so speedy or exact. The suggestion may be advanced that the plan was put into operation at a very auspicious time for its advocates.

Effect of Graded Tax on Building Activity. In attempting to find the effect, if any, of the tax with respect to building activity, it is advisable to see first what effect is to be expected. Assuming that a plot of land is purchased which is worth $2,000 (and assessed at that sum), and that various types of building are considered for it, the decreasing burden of the tax upon the whole property as the value of the building increases becomes evident. Using the tax rate of 1929, which was 25 mills on land and 12½ mills on improvements, three hypothetical situations may be considered.

a. On the land alone, unimproved, the tax is $50, the rate being the full 25 mills.
b. If a house assessed at $10,000 is erected, the tax is $175, which gives an average rate of 14.6 mills.
c. If an apartment assessed at $50,000 is erected, the tax is $675, which is an average rate of 13.0 mills.

Thus, any type of building placed upon a piece of land reduces the average tax rate, and the greatest saving in this respect arises as the building is more and more valuable relatively to the land value. The first point is the one emphasized by advocates of the plan, for the avowed purpose of the tax is to make speculative holding of idle land unprofitable.

It is unfair to derive an average tax rate for a city in which practically each piece of property pays at a different rate, depending on the relative value of land and building. Such an average yields the figure 18.96 mills.[2] This is obtained by dividing the city budget by the combined duplicates of land and improvements, and so does represent about what the rate would be on a flat valuation and rate. Therefore, to continue the speculation in land, the speculator must obtain a rise in the value of his holding greater by an amount of six mills on the dollar in addition to speculative gains, if his operation is to prove worth while.

With this idea in mind, it would be natural to expect an increase in building activity as the tax became effective. For a number of years, the United States Bureau of Labor Statistics published an index of "Volume of Construction"[3] for various cities. The figures for Pittsburgh, down to the time when the index was discontinued, follow:

TABLE II. INDEX OF VOLUME OF CONSTRUCTION,* PITTSBURGH, 1914–100

Year	Index
1921	68
1922	93
1923	90
1924	86
1925	136
1926	110

*United States Bureau of Labor Statistics *Bulletin*, No. 424, p. 11.

The contention of those advocating the graded tax would probably be that the sudden increase in 1922 was attributable to the reduction to 60% in the rate on buildings effective that year; and that the jump in 1925 was caused in the same way by the reduction to 50% made in that year. On the other hand, it

[2] This figure is used by C. S. Rightor of the Detroit Bureau of Municipal Research in a comparison of municipal tax rates. It must be apparent that for any individual this average means nothing.

[3] Index numbers for volume of construction were chosen in preference to figures for total building permits because of the difficulty in knowing how much of the proposed work would be done and charged against the tax list of the succeeding year.

should be noted that 1921 was very low in building activity, a fact which may be correlated with the industrial depression of that year. The average construction index for the 130 cities,[4] of which Pittsburgh was one, shows activity above the 1914 level for the years 1922, 1923, 1924, so that it seems more likely that Pittsburgh's activity for those years was simply recovery from the slump, and that she recovered more slowly than most of the cities of the United States. At any rate, not until 1925 did Pittsburgh do more building than in 1914.

Is it possible that other factors than taxes had something to do with the recent building activity of the City? A scrutiny of rents paid in Pittsburgh gives an affirmative answer to this question.

TABLE III. INDEX OF RENTS IN PITTSBURGH,* (1917=100)

Year	Index
Average 1917	100.0
Average 1918	107.6
June, 1919	113.5
December, 1919	115.5
June, 1920	134.9
December, 1920	135.0
June, 1921	155.5
December, 1921	155.3
June, 1922	156.7
December, 1922	156.7
June, 1923	160.4
December, 1923	160.7
June, 1924	171.8
December, 1924	172.2
June, 1925	175.2
December, 1925	175.2
June, 1926	175.4
December, 1926	175.0
June, 1927	174.7
December, 1927	174.4
June, 1928	172.8
December, 1928	171.6
June, 1929	168.3

*Adapted from 26 *Monthly Labor Review* 229 (February, 1928). Figures for 1928 and 1929 supplied by United States Bureau of Labor Statistics in letter to writer.

The major changes in the index come with the June figures, since leases are signed in Pittsburgh as of May 1. With such an increase in rentals between 1919 and 1925, a reasonable suggestion is that a housing shortage existed in Pittsburgh after the War. Several older residents have told the writer that houses were hardly to be had at any rent for several years. The index of volume of construction bears out the same idea. The peak of rentals in 1925 and 1926 and the burst of construction of those years are significant when considered together.

The justification of the graded tax is not obtained then from its influence upon building construction activity, for the question may be asked, if it is effective in this respect, why did it wait until rents had reached such a high point before forcing action? The acute housing shortage seems to have been a more potent stimulant. It will be interesting to watch the situation for a longer period of time, when other factors have become more stabilized, and the tax has been in effect longer. At present a building movement cannot be traced to the force of the graded tax. This does not, of course, mean that individuals have not been goaded into building by the tax.

The wage-earner certainly has no cause to believe that the plan has succeeded in reducing his rent. The marked rise in rents between 1919 and 1925 occurred in the very years when the burden of the tax was becoming heavier and heavier upon the holder of idle land. That the rise has been checked since 1927 can be readily explained by the high rentals themselves. No more potent urge to construction is needed.

A member of the Administration of the City, whose official position makes him especially familiar with matters of

[4] Comparison of Pittsburgh construction with that of the average for 130 cities is not wholly satisfactory. But no other adequate base seemed feasible. Selection of cities on the basis of size would be decidedly unsatisfactory, while selection on the basis of extent of industrialization is not only difficult but productive of no convincing evidence.

expenditure and revenue, made the following statement to the writer:

"To some extent this (general building activity) is probably due to the fact that in Pittsburgh there is a double tax on Land as compared with Building thereon, and the high tax might, in some cases, induce the owner to improve same, in order to obtain revenue for the payment of taxes.

". . . nor would I say that the Graded Tax Law which we have had for many years encourages building to any marked extent.

"The towns around Pittsburgh—Braddock, McKeesport, Sharpsburg, Etna, the towns comprising the North Boroughs, Dormont, Mt. Lebanon, and other sections of our hilltop—have gone along in the building line, perhaps more than Pittsburgh proper, and they do not have the Graded Tax, tax on land and building being uniform."

Effect on the Type of Buildings. A consideration of the effect of the graded tax upon the type of buildings erected seems to lead to two conflicting results. One is that the tax burden being reduced as the building is more valuable, the trend would be to apartments and large office buildings. On the other hand, holders of small lots might be impelled to build something, however small, in order to produce an income to meet the heavy burden on the land. Possibly both results could occur at the same time.

A summary of building activity by kinds of dwelling is shown in Table IV.

The data are too scanty to permit of definite conclusions. It cannot be said that the single dwelling is being forced out of the picture by the graded tax. The gain for the apartment appears to have been chiefly at the expense of the two-family house. Considering land values and rents in Pittsburgh in recent years, one feels that the apartment is merely a response to conditions making it the best type of investment among dwellings erected to rent.[5] Single houses are more likely to be owned by their occupants. An interesting observation is that Wilkinsburg, one of the older suburbs, shows practically the same trend for each of the three classes; McKeesport, farther away, also shows the same tendency, with a slightly smaller percentage of apartments and a higher ratio of single houses. In neither place is the graded tax operative.

TABLE IV. NUMBER OF FAMILIES ACCOMMODATED IN DWELLINGS OF VARIOUS TYPES IN PITTSBURGH.*

Year	Number Families Accommodated	Percentage Cared for in		
		One-family Dwellings	Two-family Dwellings	Multi-family Dwellings
1921	1,335	59.3	26.8	13.9
1922	2,711	52.8	17.5	29.7
1923	2,386	65.7	25.7	8.8
1924	2,683	75.6	14.2	9.8
1925	3,102	70.8	16.0	13.2
1926	2,781	68.0	7.7	24.3
1927	2,588	73.8	7.6	18.7
1928	2,544	62.4	10.2	27.3

*Adapted from data contained in the United States Bureau of Labor Statistics *Bulletin* Nos. 469 (p. 24) and 449 (p. 28) and in a letter to the writer supplying certain unpublished data.

Recent years have seen a considerable number of office buildings erected in the downtown area. Several of these are on or near Grant Street, which is now the widest and most accessible street in the main business district. Advocates of the plan point to it as proof of their contentions. It seems fair to indicate two other factors, however.

One is that in the very nature of things, the improvement of this street as a traffic artery would make the adjacent land desirable as sites for buildings. This land would rise in value, and buildings erected on it would find ready tenants. This would normally cause building, since Pittsburgh was anything

[5] In other words, whether the graded tax is promoting more intensive utilization of land in Pittsburgh, as it has been accused of doing in other cities, is open to question. The tendency toward multi-family housing in Pittsburgh seems to be attributable rather to high rents and high cost of living in general than to the operation of the taxing system.

but oversupplied with office accommodations, and good rentals could be anticipated. There undoubtedly existed in Pittsburgh a demand for office buildings of the modern type, which has led to their construction, quite without regard to taxes, save as one of the elements of cost which must be reckoned with in estimates of expense and income. Further, the rise in the value of the adjoining land would send up its taxes, and this burden would make it desirable for the owner to find the way to obtain the best revenue, no matter what method of taxation happened to be in use. This would make it advisable to fill vacant land, and to replace obsolete buildings, if at all possible. The force of the graded tax would, of course, accelerate this tendency.

Industrial Development. Claim is made that the graded tax favors industrial development, since buildings are taxed more lightly. Several factors seem to weaken this claim. For one thing, unless it can be shown that industrial buildings bear a higher average value in proportion to their sites than do other types of buildings, the supposed advantage of the system to them vanishes. The amount of vacant land which does bear the undiluted maximum rate of tax is scarcely sufficient to assume any major portion of the tax burden. Hence, those buildings with the greatest value ratio to their sites will gain most from the system; those properties whose building values are not much greater than their site values will, of course, find their actual tax rates higher than the average. The large investment in an apartment or office building would give it an advantage in this respect. On the other hand, the comparatively small amount of space suitable to manufacturing sites will normally bear a high value in proportion to the buildings erected upon them.[6]

Furthermore, the most satisfactory locations have long since been occupied, so that extensive industrial expansion would be difficult in any event, and unlikely unless some very strong inducement appeared.

If the correctness of the foregoing analysis be admitted, the proposition that the system will benefit the wage earner, by increasing the demand for labor, seems untenable.

Physical Growth of the City. One point remains to be considered, namely, the effect of the graded tax plan upon the physical growth of the City. This might be felt in either or both of two ways. It should tend to produce a more even expansion, leaving fewer vacant spaces, as the City extended farther and farther from the center, since the holding of such vacant spaces is penalized. On the other hand, but to a somewhat less extent, it might lead to unwise building too far out from time to time, perhaps to be followed by periods of stagnation and waiting while the City caught up with these frontiers. It is not possible to obtain much light upon this phase of the problem from the Pittsburgh situation.

The second possibility is largely nonexistent, since the city limits of Pittsburgh are closer to the center than is the case with most large cities. The growth of the district has already taken the population well beyond the City line in every direction. This growth is consequently unaffected by a system of taxation which stops at the boundaries of the City.

[6] The public official previously quoted inclines to the same view, but for slightly different reasons. In answer to the question whether or not the graded tax might be expected to bring industrial expansion, he said, "—I doubt it. Large industries, such as manufacturing establishments, will not come to Pittsburgh proper, as property values are too high. These only go to the Pittsburgh District outside the city proper. I venture to say that there will not be a rolling mill or factory established at any time in the future within the city lines—certainly not under present conditions."

As to the vacant holdings, such few as are actually being held for an increase in value undoubtedly feel the pressure of the heavy tax rate on land. Apparently, however, the majority of vacant spaces in Pittsburgh are the result of the uneven topography and consequent difficulties of transportation. The hills and rivers have caused the City to grow in those directions and into those sections where access is less difficult. As new bridges, tunnels, and boulevards are provided from time to time, the districts served experience marked growth. In the absence of actual testimony from individuals that they were impelled to build by the exigencies of the tax burden, it would be unwise to say more than that the effect in this connection, if any, must certainly be favorable rather than opposed to building.[7]

Conclusion. It is unfortunate for those who wish to discover proof of economic phenomena in experimental ways that the Pittsburgh tax experiment is not more conclusive. Practically every claim advanced in its favor loses force when scrutinized because the result expected cannot be segregated, or if it can some other and more powerful cause can be shown to exist. That the system is the panacea claimed by some enthusiasts is clearly not the case. Equally unwise would be the statement that its effects are non-existent. Their isolation from other causal factors, and their quantitative proof, however, will be no easy task.

As a revenue measure, the graded tax has worked well enough. It is to be preferred to the general property tax which still persists in so many American municipalities. This is, of course, not because it is a graded tax, but because it is admittedly a tax on real property only. There is no pressing reason why the system should be repealed, and future experience may provide interesting data. At present, the burden of proof of claims advanced by those who see in it the possibilities of social improvement must certainly remain upon them.[8]

[7] A question which naturally arises in this connection is: Does this graded tax plan lead to waste by stimulating premature utilization of land? Proof of whether the graded tax alone has this effect or not is difficult to secure. A tendency to stimulation would seem natural but statistical measurement of such a tendency is almost impossible.

[8] In a personal letter to the writer, the Controller of the City of Scranton says that the graded tax has worked well in that City, and been of benefit to it. Certain other cities have tried similar plans. A comparative study of these might be valuable.

UTILITIES IN RECENT FINANCIAL MARKETS

By ROY L. REIERSON

"BLACK THURSDAY" is the dividing line between the past and the present in the financial markets. To the investors, the crash either resulted in the loss of fortune in profit, or it was the somewhat belated vindication of an oft repeated doubt as to the soundness of the market movement. To the business desiring to raise capital, the crash meant a very definite change in the conditions to be considered in selecting the types of issues which could be sold most profitably.

A survey of public utility financing during 1929 is very intimately connected with the recent developments. Speculative conditions in the market no doubt influenced profoundly the volume and character of public utility financing, not only in its upward movement before the crash, but in the decline immediately thereafter. Information is not available at the time of writing to measure at all accurately the effect of the crash upon financing in the public utility industries. It would seem to be of interest, however, to include with a picture of the height of the speculative period (the third quarter of 1929) some indications of the financial developments immediately thereafter. Information of the character used in these studies is limited to a single month of post-crash conditions. A more complete picture awaits further development and more complete information. The present article seeks merely to characterize, not explain, in terms of cause and effect the recent financing experience of public utilities through the third quarter of 1929.

The developments in public utility financing during the third quarter of 1929 may be very briefly summarized.[1] A noticeable increase in the volume of public utility financing occurred during the period. This increase in volume even after the elimination of several investment trust issues, was enough to make the first three quarters of the year an outstanding period. The increase in financing consisted of a remarkable increase in volume of stock issues, since debt financing decreased in absolute amount and in comparative significance. Refunding capital continued at something under 25% of the total capital issues. The price of debt capital continued quite uniformly upward with operating companies in a comparatively better bargaining position for capital than holding companies. Holding company issues were of considerable importance during the first nine months of the year, being of comparatively more importance than in any year except 1928.

Volume of Financing

The third quarter of 1929, contrary to expectations based on previous experience and in marked contrast to the situation in October and November, was one of the big quarters in the history of public utility financing. In fact, its index number of 400 is larger than that for any quarter since the second period of 1928, and has been exceeded but three times since 1919[2] (Table I). Two big months,

[1] Much of the information is presented for the current period or for the last year only. For more complete tables on the statistical material the reader is referred to a previous article by the writer, 5 *Journal of Land & Public Utility Economics* 425–430 (November, 1929). This article also mentions the basis of classification used in differentiating among investment trust, holding, and operating company issues, and describes the nature of the basic data more in detail.

[2] In the first and fourth quarters of 1927 and in the second quarter of 1928.

July (with a monthly index of 276) and September (319) accounted for the large volume. It might be of interest to note that the September volume was the largest September recorded to date in public utility financing. Furthermore, its index of 319 has been exceeded by only one month (December, 1927) when the index reached a record high of 433. In amount the September public utility financing was about $380,000,000. The third quarter reached the significant total of almost $822,000,000, while the total public utility financing for the first nine months of 1929 was about two and a quarter billion dollars.

On the basis of volume during the first three quarters there was a possibility before "Black Thursday" that 1929 would set a record yearly high total for utility financing. Support for this statement is found by calculating average quarterly index numbers (Table II). The average quarterly index number for 1929 (based upon the first three-quarters of financing) is above the comparable index number for any year. The 1929 average three-quarters' index of 363.3 practically equals the highest four-quarter average for any one year (363.5 in 1927). The market crash presaged in October by a decline of the index number of financing to 84 and followed in November by the lowest monthly total of public utility financing ($26,509,000) since August, 1922, blasted any hope of a new yearly record. In spite of this marked reaction during the last quarter, 1929 will stand as one of the big years in public utility financing to date.

Utility and Corporate Financing. As the result of greater volume, public utility financing increased slightly in comparative importance during the third quarter. Almost 24% (23.88) of total government plus corporate financing during this period was issued by public utilities, compared with 22.68% for the first six months of the year (Table III). Public utility financing also was 26.06% of the total corporate financing for the quarter, compared with 25.74% for the

TABLE I. INDEX NUMBER OF VOLUME OF PUBLIC UTILITY FINANCING, 1919–1929.*

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
By Months											
January	100	67	55	46	122	112	199	173	259	176	169
February	48	28	25	47	66	89	172	125	314	220	248
March	25	27	25	43	94	78	144	115	158	190	268
April	5	38	25	50	64	112	69	182	165	318	107
May	15	38	35	150	66	233	103	230	214	203	287
June	26	20	9	96	92	122	118	181	130	317	109
July	41	25	115	44	21	104	90	177	97	48	276
August	20	11	33	22	40	62	93	58	92	82	94
September	54	44	34	147	34	77	110	38	168	169	319
October	24	33	33	77	59	112	92	123	261	180	86
November	8	21	119	43	161	69	102	136	212	127	22
December	20	63	53	54	135	111	153	114	433	167	.....
By Quarters											
1st quarter	100	71	61	80	164	162	299	240	424	340	398
2nd quarter	27	56	41	172	129	271	168	344	295	487	292
3rd quarter	67	47	105	123	55	141	170	159	207	178	400
4th quarter	30	68	119	101	206	169	201	217	528	275	.....
By Years	100	107	145	212	246	330	373	427	647	570	.....

*Volume for January, 1919, First Quarter, 1919, and year 1919 used as basis for computing index numbers for months, quarters, and years respectively. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*.

first six months. This slight recovery in comparative importance was not sufficient to bring the utility group back into the position of outstanding leadership in corporate financing which it occupied from 1922 to 1928. During this period it never fell below 30% of the corporate total and was closer to 40 % of the total for most of the years during the interval.

TABLE II. AVERAGE QUARTERLY INDEX NUMBERS OF PUBLIC UTILITY FINANCING

	Average of Four Quarters*	Average of 1st Three Quarters†
1919	56.0	64.7
1920	60.5	58.0
1929	81.5	69.0
1922	119.0	128.3
1923	138.5	116.0
1924	185.75	191.3
1925	209.5	212.3
1926	240.0	247.7
1927	363.5	308.7
1928	320.0	335.0
1929	.....	363.3

*Average of four quarterly index numbers.
†Average of index numbers for the first three quarters.

It will be noted that the average for the period from 1919 to August 31, 1929 (32.38%), is significantly above the third-quarter average. As compared with general corporate financing, public utility financing was affected more severely by the market decline judging from the rather incomplete information available. In October, the month of the crash, utility financing was 13.52% of the corporate total; in the following month it had dropped to 7.63%.

Investment Trust Issues Eliminated. The question may be asked: Was a large part of the increased volume of financing ascribed above to the public utility group caused by inclusion of investment trust issues?[3] It is true that issues of this latter variety were put out in increasing amounts during this speculative movement. Comparatively few such issues were found to be included in this total; hence this refinement will not change the final index numbers appreciably. The index numbers of volume for the current year, with the investment trust issues eliminated, are shown in Table IV. The original conclusions as to volume of public utility financing are substantially confirmed by the revised figures. The new quarterly average for 1929 (351) is considerably above the average for any other year (based upon three quarters) and is exceeded (upon a four-quarter basis) by the average of but one year (1927).

TABLE III. VOLUME OF PUBLIC UTILITY ISSUES EXPRESSED AS A PERCENTAGE OF CORPORATE FINANCING AND AS A PERCENTAGE OF GOVERNMENT PLUS CORPORATE FINANCING.*

Year	Percentage of Government Plus Corporate Financing	Percentage of Total Corporate Financing
1919—Aug. 31, 1929	23.03	32.38
1919	10.79	16.87
1920	12.39	16.75
1921	15.96	28.07
1922	18.69	31.90
1923	22.81	35.21
1924	24.08	39.85
1925	24.21	36.41
1926	26.57	37.26
1927	30.26	40.90
1928	26.53	33.97
1929	.....	.....
1st quarter	26.14	28.78
2nd quarter	19.21	22.51
3rd quarter	23.88	26.06
Nine months	23.10	25.86
October	11.66	13.52
November	8.91	7.63

*Computed from summary of corporate and government financing, *Commercial and Financial Chronicle.*

Stocks and Bonds

Another tendency which has been evident for several years continued in 1929, namely, an increase in the percentage of stock in public utility financing. In spite of the stability of financial practice com-

[3] *The Commercial and Financial Chronicle* figures for public utility financing are described as excluding the investment trust issues. Some issues which seem to classify as investment trust were found to be included in the utility total, and are here excluded. For the basis of separation see previous article referred to in note 1.

monly ascribed to the public service industries, noticeable variations have occurred within the last decade in their methods of financing. During that period there have been years in which stock financing fell below 8%, and times when it has risen above 60% (first three-quarters, 1929). Short-term financing was as high as 54.6% of the total in 1919, and as low as 3.5% in 1929, with even lower figures for shorter periods. Long-term debt financing was most important in 1923 (71.39%) and least important in 1919 (37.6%). A picture of this variation may be obtained from Table V.

TABLE IV. COMPARISON OF INDEX NUMBERS OF VOLUME OF PUBLIC UTILITY FINANCING

	Commercial and Financial Chronicle Totals	Excluding Investment Trust Issues
1929		
January	169	147
February	248	212
March	268	265
April	107	107
May	287	287
June	109	109
July	276	276
August	94	91
September	319	319
1st quarter	398	362
2nd quarter	292	292
3rd quarter	400	399

The general nature of the changes in financial technique which occurred within the last decade is fairly well known. A quantitative measurement of these changes up to the market collapse, as evidenced by the type of securities issued may have value, however, in facilitating a more accurate description of the various periods. On the basis of the figures in Table V, the interval from 1919 through August 31, 1929, may be divided as in Table VI and the separate periods analyzed briefly.

1. The relatively scanty profits in the industries in the years immediately preceding 1920, coupled with rather unsatisfactory financial market conditions, made difficult the sale of stock to regular investors in ordinary investment channels. The comparatively high price which had to be paid for debt capital during the period in all probability is responsible for the large proportion of temporary short-term financing.

TABLE V. PERCENTAGE OF STOCK ISSUES AND LONG-TERM AND SHORT-TERM DEBT IN PUBLIC UTILITY FINANCING*

Period	Percentage Stocks	Percentage Debt	Percentage Long-Term Debt	Percentage Short-Term Debt
1919	7.8	92.2	37.6	54.6
1920	12.1	87.9	43.9	44.0
1921	18.7	81.3	70.5	10.8
1922	30.8	69.2	64.5	4.7
1923	23.0	77.0	71.3	5.7
1924	34.1	65.9	57.5	8.4
1925	31.8	68.2	59.5	8.7
1926	24.7	75.3	69.9	5.4
1927	28.5	71.5	66.8	4.7
1st quarter	39.0	61.0	59.4	1.6
2nd quarter	21.3	78.7	72.7	6.0
3rd quarter	25.0	75.0	70.8	4.2
4th quarter	25.5	74.5	68.0	6.5
1928	37.2	62.8	57.7	5.1
1st quarter	22.2	77.8	75.4	2.4
2nd quarter	46.0	54.0	51.2	2.8
3rd quarter	31.3	68.7	55.0	13.6
4th quarter	44.0	56.0	48.5	7.5
1929				
1st quarter	58.1	41.9	40.4	1.5
2nd quarter	40.6	59.4	52.7	6.7
3rd quarter	78.6	21.4	18.1	3.3
1st 9 mos.	60.9	39.1	35.5	3.6
October	35.1	64.9	63.9	1.0
November	92.6	7.4	1.9	5.5
1st 11 mos.	60.2	39.8	36.3	3.5

* Computed from summary of corporate and government financing, *Commercial and Financial Chronical.*

2. The proportions of stock and debt financing in the six years, 1921–1926, reflected the more stable expectations and conditions generally prevailing. The percentage of short-term financing decreased markedly from nearly ½ the total in the earlier period to less than 1/10. This tendency was balanced by increased percentages of both long-term debt and stock, the latter almost tripling in relative importance.

3. The outstanding characteristic of the last three years (1927 to August 31, 1929) was a significant increase in the percentage of stock issues. Stock issues comprised 40.7% of the financing during this period, compared with 26.5% from 1919 to 1927. Looking at it differently, debt financing decreased in importance from 72% of the total (1921–1926) to 59.3%. The stock movement was cumulative gathering force as it moved toward the market crash. Thus the percentage of stocks was 28.5% in 1927, increased to 37.2% in 1928, and 60.9% for the first three quarters of 1929. The third quarter set a record for stock financing when almost 80% of the volume was stock, eclipsing previous high of 58.1% in the first quarter of the year. The increase in the percentage of stock financing in the third quarter (as compared with 40.6% for the second quarter) resulted partly from a 50% decline in the volume of bond issues (from $356,000,000 in the second to $176,000,000 in the third) but a much more important influence was an increase in stock issues from $243,610,000 to $646,100,000. The high record of financing set in the third quarter was made very largely on the basis of stock issues.

TABLE VI. PERCENTAGE DISTRIBUTION OF PUBLIC UTILITY FINANCING BY TYPE OF SECURITIES FOR SELECTED PERIODS, 1919-1929

Period	Percentage of Stock	Percentage of Debt	Percentage Long-Term Debt	Percentage Short-Term Debt
1919–1920.....	10.1	89.9	40.8	49.1
1921–1926.....	28.0	72.0	64.9	7.1
1927—Aug. 31, 1929....	40.7	59.3	54.8	4.5
1928—Aug. 31, 1929....	48.1	51.9	47.5	4.4
1st 3 quarters, 1929....	60.9	39.1	35.5	3.6

Conditions in the financial markets immediately before and after the deflation were highly unsatisfactory for the sale of public utility securities. This is indicated by the October total ($202,000,000), which was less than ¼ of the previous September figure of $822,000,000. A distinct falling off in stock also took place during October, when but 35% of the financing was done by means of stock sales. The previous quarter, it will be recalled, set a high mark of 78.6%.

Virtual stagnation was the main characteristic of November public utility financing. Only one issue of any considerable size, a Detroit Edison stock issue of some $21,000,000, was marketed. Other financing raised the total some five millions of dollars. Stock issues, sold to stockholders almost entirely, accounted for 92.6% of the total.

Debt Capital

Price of Debt Capital. The general tendency toward an increasing price of debt capital to public utilities, which has been evident since 1927, and whose presence in the first two quarters of 1929 has been noted (note 1), was also apparent in the third quarter of the current year (Table VII). The only exception to the general upward movement in yields was in the case of the simple average yield on operating company issues, which declined from 5.83% in the second quarter to 5.53% in the third quarter. On the other hand, the weighted average yield on operating company issues increased from 4.82% to 5.57% during the same interval.[4] Both the weighted and simple average yields on holding company issues have registered successive increases during each of the three quarters of 1929.

[4] The 4.82% weighted average yield on operating company issues during the second quarter of 1929, the lowest level ever reached by this average during the years surveyed, was attributable to the $219,000,000 American Telephone and Telegraph issue, sold in the second quarter at a price to yield 4.50%. No comparable issue was put out during the third quarter; hence the weighted average increased.

Compared with holding companies, operating companies have found themselves in an improved bargaining position for debt capital during the successive quarters of 1929, if yield may be taken as indicative of bargaining power.[5]

TABLE VII. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICES OF NEW ISSUES OF DEBT OBLIGATIONS OF PUBLIC UTILITIES, BY HOLDING AND OPERATING COMPANY GROUPS.*

Year	Weighted Average Yield			Simple Average Yield		
	All Issues	Operating	Holding	All Issues	Operating	Holding
1919	6.57	6.53	6.67	6.68	6.63	6.89
1920	7.43	7.40	7.63	7.62	7.58	7.95
1921	7.14	7.09	8.15	7.50	7.46	8.05
1922	6.08	5.99	6.68	6.32	6.26	6.83
1923	5.99	5.92	6.58	6.30	6.27	6.56
1924	5.97	5.86	6.50	6.13	6.08	6.40
1925	5.59	5.48	5.78	5.83	5.77	6.09
1926	5.52	5.38	5.90	5.70	5.64	5.90
1927	5.22	5.13	5.38	5.58	5.50	5.80
1928	5.26	5.09	5.39	5.58	5.41	5.79
1929						
1st quarter	5.47	5.50	5.46	5.89	5.83	5.96
2nd quarter	5.00	4.82	5.99	5.97	5.83	6.19
3rd quarter	5.86	5.57	6.08	6.20	5.53	6.56
1st nine months	5.34	5.05	5.71	5.98	5.79	6.21

*Computed for issues shown in monthly record of new financing in *Commercial and Financial Chronicle*. Because of the additional information desired for this study, some issues included in previous surveys had to be omitted here because of insufficient information.

Thus the excess of the simple average yields on holding company issues over the corresponding yields on operating company issues was .13%, .36% and 1.03% respectively for the first, second and third quarters of 1929. In other words, operating company issues during the third quarter of 1929 were able to raise debt capital at a saving of 1.03 cents per year per dollar paid by the investor over the price paid by holding companies.[6]

Holding and Operating Volume. The presence in the second quarter of the very large Telephone Company issue just noted (note 4), makes difficult any statement as to the general tendency in the movement of holding and operating company debt financing during the year. It may be better, therefore, to compare briefly the first and the third quarters (Table VIII). The third-quarter volume of debt financing is less than 60% of the first-quarter total, indicating the great decrease in the amount of debt financing during the later period. Most of this decrease occurred in the holding company group, where the third-quarter total was but 46% of the first quarter, compared with operating company issues where total in the third quarter was 87% of the first-quarter amount. An increase in the percentage of operating company financing from 27.46% of the total in the first quarter to 41.91% in the third quarter resulted. Holding company issues were 44% of the nine months' total, including in the latter figure the large Telephone Company issue. This is higher than any previous year, except 1928, and compares with 28.91% of the total volume from 1919 to 1929 which were holding company issues.

TABLE VIII. VOLUME OF NEW PUBLIC UTILITY DEBT ISSUES CLASSIFIED ACCORDING TO TYPE OF ISSUING COMPANY, 1919-SEPTEMBER, 1929

Year	Percentage Issued by Operating Companies	Percentage Issued by Holding Companies
Total, 1919–1928	71.09%	28.91%
1919	68.54	31.46
1920	90.22	9.78
1921	95.98	4.02
1922	86.02	13.98
1923	89.56	10.44
1924	81.82	18.18
1925	62.29	37.71
1926	73.33	26.69
1927	63.24	36.76
1928	44.70	55.30
1929		
1st quarter	27.46	72.54
2nd quarter	84.86	15.14
3rd quarter	41.91	58.09
1st 9 months	56.04	43.94

[5] This statement should not be applied too generally nor an offhand explanation undertaken. Further information regarding other aspects of the capital bargain, such as the comparative importance of debt and equity financing, the cost of equity capital, etc., is needed for a complete analysis.

[6] This statement excludes bankers' margins. The statement does not show the actual difference in the cost per year per dollar of money received by the company, if the bankers' margins are not comparable for the two types of issues.

New and Refunding Capital

No change in the relative proportions of new and refunding capital occurred during the first three quarters of 1929 (Table IX). Slightly over 20% of the capital raised by the public utilities in the third quarter was used for refunding. This percentage is in close agreement with the figures for the other two quarters and corresponds closely to the average for the period. Of the small amount of financing done since the crash practically none was done for the purpose of refunding.

TABLE IX. PERCENTAGE OF NEW AND REFUNDING CAPITAL IN PUBLIC UTILITY FINANCING 1919-AUGUST 31, 1929.

Period	Percentage of New Capital	Percentage of Refunding Capital
1919	60.3	39.7
1920	77.0	23.0
1921	73.3	26.7
1922	74.1	25.9
1923	78.0	22.0
1924	86.7	13.3
1925	86.7	13.3
1926	81.3	18.7
1927	69.5	30.5
1st quarter	70.6	29.4
2nd quarter	69.8	30.2
3rd quarter	81.7	18.3
4th quarter	63.6	36.4
1928	71.5	28.5
1st quarter	55.2	44.8
2nd quarter	63.5	36.5
3rd quarter	95.4	4.6
4th quarter	90.8	9.2
1929		
1st quarter	79.0	21.0
2nd quarter	76.8	23.2
3rd quarter	77.3	22.7
1st 9 months	77.8	22.2
October	94.0	6.0
November	98.5	1.5

The most radical change in the comparative importance of new and refunding issues occurred in 1928. The unfavorable bond market beginning around the middle of the year was no doubt instrumental in reducing refunding operations from 44.8% and 36.5% of the financing for the first two quarters, to 4.6% and 9.2% for the last half of the year. This percentage rose in 1929 to something over 20%, where it remained.

Type of Security and Purpose of Issue. Are the variations in types of securities issued by utilities during the decade the same for new and refunding issues? In other words, does the purpose for which the capital is to be used affect the type of instrument used to raise the funds? Is refunding capital, compared with new capital, raised to a greater or lesser degree by means of stock issues? The facts for comparing new and refunding issues are summarized in Table X and Chart I.

Without attempting here to assign reasons for the differences, the following comments seem in order:[7]

1. The stock issues are consistently more significant in the raising of new capital than they are in refunding operations.

2. Stock financing has increased in importance during the period in both new and refunding operations. Of the new capital raised during 1919 and 1920 less than 14% was raised by stock issues, whereas nearly ½ of the new capital needs from 1927 on were raised by stock and $^2/_3$ of the current year's needs were so satisfied.

3. Stock financing became a significant element in new financing as early as 1921 and 1922. Nearly 40% of the new capital raised during the latter year was by stock issues. Stocks were comparatively unimportant in refunding operations as late as 1927, when only 7.5% of the refunding was by stocks. Beginning in

[7] An attempt to explain the differences would require information as to the causes of the refunding; the type of company doing the financing and its financial structure; profit-making ability of the industry and individual company; the type of security market and its relation to the type of company; the class of investor buying the securities, etc. Possibly the presence of psychological and other non-financial influences governing the financial bargain and not subject to direct measurement might prevent an adequate and complete evaluation of the reasons for any notable differences.

TABLE X. COMPARISON OF PERCENTAGE OF DEBT AND STOCK FINANCING IN NEW AND REFUNDING CAPITAL FOR VARIOUS PERIODS, 1919-1929*

	New Capital				Refunding Capital			
	Stock	All Debt	Long-Term Debt	Short-Term Debt	Stock	All Debt	Long-Term Debt	Short-Term Debt
1919–1920.....	13.77	78.3	48.0	38.39	2.1	97.9	25.1	72.8
1921–1926.....	32.5	67.5	61.2	6.3	8.3	91.7	81.2	10.5
1927–1929.....	48.5	51.5	47.4	4.1	20.0	8.0	74.4	5.6
1928–1929.....	54.6	45.4	41.2	4.2	29.2	70.8	65.8	5.0
1st 9 mos., 1929.	66.7	32.3	31.1	3.2	41.0	59.0	50.7	8.3

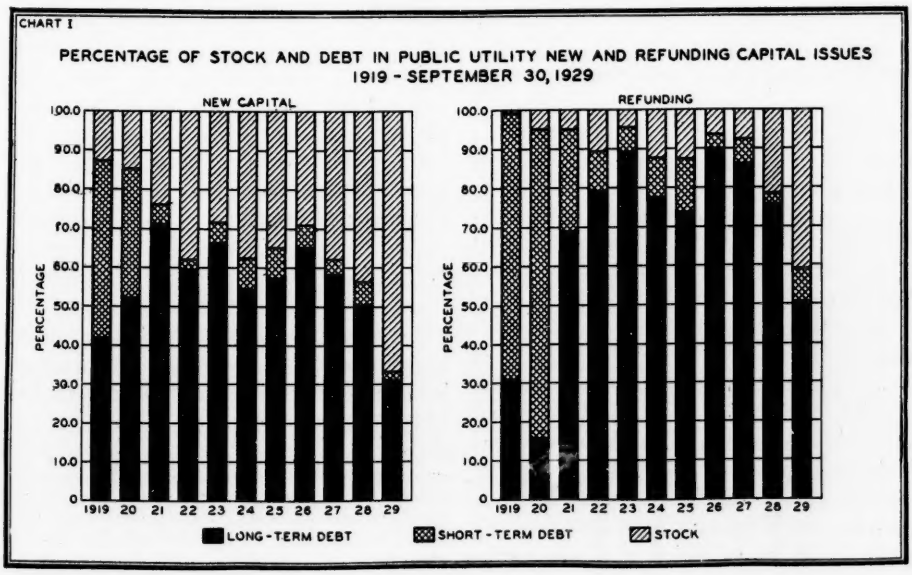
*Computed from monthly summary of financing, *Commercial and Financial Chronicle.*

1927 stock issues rapidly increased in importance in new financing. In refunding, the increase did not begin until 1928. Apparently stock issues were not applied to refunding operations as rapidly as to the raising of new capital.

4. Short-term financing is comparatively more significant in raising refunding capital than in raising new capital.

5. During the first two years, a period of short-term financing, long-term debt issues were comparatively less significant in refunding than in the raising of new capital. Since that time the tendency has been reversed and for the next six years over 80% of the refunding and about 60% of the new capital took the form of long-term bonds. This was to be expected from comments previously made regarding stock financing.

How these tendencies in utility capital financing carried through three quarters of 1929 have been affected by "Black Thursday" and its aftermath is generally known from daily press reports. But a more precise characterization has to await further efforts of the compilers of statistics.



COUNTRY BANKING EFFICIENCY AND THE MOVEMENT FOR CONCENTRATION OF MANAGEMENT

By VIRGIL P. LEE

RECENT mergers of city banks and the development of chain banks and branch banking systems are creating considerable interest in the possibility of such developments among country banks. In fact, during the past five years many mergers have taken place among country banks, but the process has been called "consolidation." In most cases a strong bank has taken over a failing bank in the same town. Also, a phenomenal development of chain banking has occurred during the past few years in the Northwest, particularly in Minnesota, largely because of the failure since 1920 of such a large number of independent banks. But chain banking and the merger movement have scarcely reached the agricultural communities except in emergencies of bank failures or near failures.

A study made recently by The Economic Policy Commission of the American Bankers' Association indicates the present status of chain banking in 13 selected states and in the combined 39 states which have chain banks (Table I). Of course, many of these chains are restricted entirely to city banks and many other chains include some city banks as well as country banks.

Whether chain banking is likely to develop on a large scale in agricultural towns depends to a great extent upon the possible economies in management and operation as compared with the present independent banks. With the growth of bank mergers and bank chains and the general development of merchandizing chains, the possibilities of chain banks for farming communities will very likely receive thorough consideration during the next few years. The purpose of this article is to indicate some of the possible improvements to be made by country bankers, whether by chain banking systems or by independent banks.

The independent banking system is most vulnerable in those sections where interest rates on loans are high compared with losses on loans. In these sections the banking business seems to be most inefficient. My article on "Country Banking Costs and Interest Rates," in the August, 1929, number of the *Journal* indicates that the average expenses per unit of business (earning assets) among country national banks in Arizona, California, Iowa, Kansas, Mississippi, Montana, North Dakota, Texas, and Washington are 37.5% higher than the average expenses of such banks in Illinois, New Hampshire, New York, and North Carolina. About $^5/_3$ of the excess of expenses among the western and southern banks was caused by excess in salaries, supplies, and maintenance of the place of business.

I. Relation of Volume of Business to Efficiency

In general, a direct relation seems to exist between the volume of loans and investments[1] of country banks and the

[1] It should be observed that the total of loans and investments is not synonymous with earning assets, since the latter term includes a part of the deposits in other banks, real estate other than that used by the bank, and most banks have a small miscellaneous item called "other assets," all or a part of which may be earning.

TABLE I. PROGRESS OF CHAIN BANKING IN SELECTED STATES, 1929.*

State	Chain Banks Dominated by Particular Banks			Non-Banking Holding Company Chain Enterprises			Chain Bank Groups Controlled by Individual Persons			Total for All Classes of Chain Banks		
	No. of Chains	No. of Banks	Resources	No. of Chains	No. of Banks	Resources	No. of Chains	No. of Banks	Resources	No. of Chains	No. of Banks	Resources
Arizona	....	....	.....	....	....	.....	1	6	$ 21,560,000	1	6	$ 21,560,000
California	7	42	$1,332,890,000	....	....	.....	5	16	17,640,000	12	58	1,350,530,000
Illinois	3	25	908,140,000	....	....	.....	8	61	142,720,000	11	86	1,050,860,000
Iowa	....	....	.....	....	....	.....	12	90	85,150,000	12	90	85,150,000
Kansas	....	....	.....	....	....	.....	10	55	41,070,000	10	55	41,070,000
Mississippi	1	5	6,920,000	....	....	.....	....	....	.....	1	5	6,920,000
Montana	....	....	.....	....	....	.....	1	8	5,940,000	1	8	5,940,000
New Hamp.	....	....	.....	....	....	.....	....	....	.....	....	....	.....
New York	5	27	311,890,000	5	60	3,797,540,000	7	30	97,360,000	17	117	4,206,790,000
N. Carolina	....	....	.....	....	....	.....	....	....	.....	....	....	.....
N. Dakota	....	....	.....	....	....	.....	8	62	27,150,000	8	62	27,150,000
Texas	1	6	16,620,000	....	....	.....	11	31	101,300,000	13	51	136,110,000
Washington	....	....	.....	6	47	184,650,000	....	....	.....	18	77	203,630,000
Totals for 39 States	78	407	$6,472,870,000	28	380	$ 5,334,800,000	167	1071	$1,467,720,000	273	1858	$13,275,390,000

*"A Study of Group and Chain Banking," The Economic Policy Commission, American Bankers' Association, 1929.

expenses per unit of business. Thus the average loans and investments of country banks in the four northern and eastern states were $1,155,000, while those in the nine southern and western states were $727,000. Table II shows the average volume of loans and investments and the average expense per dollar of loans and investments in the 13 states. The average loans and investments per bank for the 13 states is $879,000. The banks in seven states have less than the average and those in six states have more than the average. The average volume for the first group is $611,000, while that for the second group is $1,192,000. The average expense per dollar of loans and investments in the former group is 5.40 cents, while in the latter group it is 6.07 cents.

Further evidence of the relation of volume of business to expenses per unit of business is found in the various studies made by federal reserve banks of member banks' expenses during the past few years. Table III gives a summary of some of the studies in the Chicago, Philadelphia, and Dallas Reserve Districts, which include important agricultural regions.

A similar gradation of expenses according to volume of business is found in a study made for all Iowa incorporated banks by the Iowa Bankers' Association for 1924, 1925, 1926, and 1927. Table IV gives the figures for 1927. Here the very small banks are isolated. Expenses decrease rapidly up to the $250,000 banks, after which the decrease is much more gradual (Chart I).

A study made by the writer of expenses of 84 country national banks in Texas for the year ending June 30, 1928 shows a similar situation (Table V).

TABLE II. AVERAGE VOLUME OF LOANS AND INVESTMENTS AND AVERAGE EXPENSES OF COUNTRY NATIONAL BANKS IN 13 REPRESENTATIVE STATES, 1918–1919 AND 1921–1926.*

State	Average Number of Banks	Average Loans and Investments per Bank (in Thousands of Dollars)	Average Expenses per Dollar of Loans and Investments (in Cents)
New York	463	1,492	4.42
North Carolina	84	1,405	5.22
Mississippi	33	1,383	5.75
Arizona	19	995	7.60
California	261	977	5.13
New Hampshire	55	900	4.28
Washington	89	839	5.72
Illinois	461	822	4.61
Iowa	334	625	5.96
Montana	115	556	6.65
Texas	533	533	6.12
Kansas	246	481	5.98
North Dakota	171	422	7.48
Average	220	879	5.76

*Compiled from *Annual Reports* of the Comptroller of the Currency.

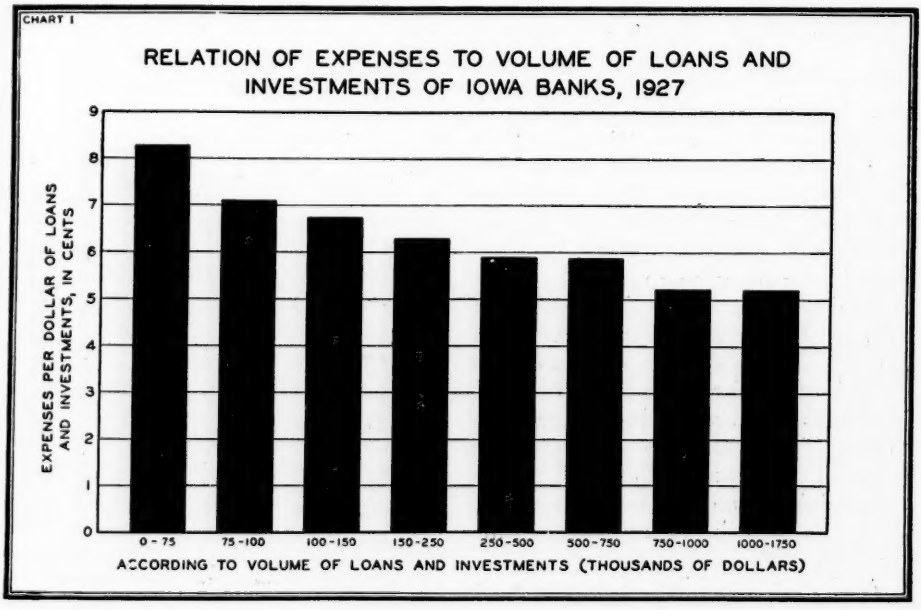
TABLE III. RELATION OF EXPENSES TO VOLUME OF LOANS AND INVESTMENTS OF MEMBER BANKS IN VARIOUS FEDERAL RESERVE DISTRICTS*

Loans and Investments By Districts	Number of Banks	Total Expenses per Dollar of Loans and Investments (in Cents)
Chicago (1926)		
0— $ 250,000	165	5.87
$ 250,000— 500,000	309	5.51
500,000— 750,000	200	5.13
750,000— 1,000,000	126	4.93
1,000,000— 1,500,000	146	4.86
Philadelphia (1927)		
0— $ 250,000	34	4.48
$ 250,000— 500,000	81	4.39
500,000— 750,000	85	4.25
750,000— 1,000,000	70	4.23
1,000,000— 1,250,000	50	4.10
1,250,000— 1,500,000	48	4.26
Dallas (1928)		
0— 300,000	30	6.9
$ 300,000— 500,000	30	5.0
500,000— 800,000	30	4.7
800,000— 2,000,000	30	4.6

*Data taken from statistical studies made by the Chicago, Philadelphia, and Dallas Reserve Banks.

Since salaries and wages constitute a large percentage of the total expenses of small country banks, a comparison of this item for banks of different sizes should give some indication of the advantages of a good volume of business. In the study of 84 Texas country national banks the average cost of salaries and wages per dollar of earning assets was found to be almost twice as great for 10 banks with earning assets under $200,000 as it was for 10 banks with earning assets from $600,000 to $800,000 (Table VI). This is an enormous difference in terms of net earnings per dollar of capital. A saving of 1.47 cents on each dollar of earning assets, with an ordinary ratio of earning assets to capital of 4, means approximately 6% on the capital of the bank.

Studies made by the Iowa Bankers' Association and the Chicago, Dallas, and Philadelphia Reserve Banks show similar results. Thus in Iowa (1927) the average percentage of expenses for salaries and wages for banks with less than $75,000 in loans and investments was 3.11, while for banks with $500,000 to $750,000 it was only 1.44. Member banks with less than $250,000 in loans and investments in the Chicago District (1926) had an average expense for



salaries and wages of 2.06 cents per dollar of loans and investments, while the banks with $500,000 to $750,000 had an expense of 1.47 cents. Dallas member banks (1928) with less than $300,000 in loans and investments had an average salary and wage bill of 3.6 cents[2] per

TABLE IV. RELATION OF EXPENSES TO VOLUME OF LOANS AND INVESTMENTS OF IOWA BANKS, 1927.*

Size of Banks According to Volume of Loans and Investments	Number of Banks	Total Expenses per Dollar of Loans and Investments (in Cents)
$ 0— $ 75,000	48	8.29
75,000— 100,000	47	7.09
100,000— 150,000	156	6.71
150,000— 250,000	316	6.31
250,000— 500,000	393	5.90
500,000— 750,000	160	5.89
750,000— 1,000,000	66	5.22
1,000,000— 1,750,000	76	5.21

*From a study made by the Iowa Bankers' Association.

dollar of loans and investments, and those with $500,000 to $800,000 had an expense of 2.1 cents. Philadelphia member banks (1927) had a considerably lower salary and wage bill per unit of business, but the smaller banks showed a similar disadvantage. Here banks with less than $250,000 in loans and investments paid an average of 1.54 cents for each dollar of loans and investments and those with $500,000 to $750,000 paid 1.19 cents.

Larger Banks Have a Higher Ratio of Earning Assets to Capital. Bank studies show that the larger banks have an advantage over the smaller banks also in that they are able to maintain a higher ratio of earning assets to capital. This has an important bearing on net earnings on bank capital. Table VII indicates the ratio of loans and investments to capital (capital, surplus, and undivided profits) and the net earnings[3] of member banks in the Chicago and Philadelphia Reserve Districts.

Table VIII shows the ratio of earning assets and net earnings per dollar of capital for 84 Texas country national banks, classified according to size (Chart II).

These three studies indicate that the ratio of loans and investments to capital increases greatly from the smallest banks to the next group of larger banks, and gradually in most cases on up to the banks with $1,500,000 of earning assets. One illustration will show the importance of this ratio. Take the case of the 10 Texas banks with an average of $3.02 of earning assets to $1.00 of capital. Net earnings were 6.78%. With $5.01 of earning assets to $1.00 of capital (which was the ratio for the banks with $800,000

TABLE V. RELATION OF EXPENSES TO VOLUME OF EARNING ASSETS* OF 84 TEXAS COUNTRY NATIONAL BANKS FOR THE YEAR ENDING JUNE 30, 1928.

Size Group	Number of Banks	Expenses per Dollar of Earning Assets (in Cents)
$ 0— $ 199,999	10	5.71
200,000— 399,999	18	4.03
400,000— 599,999	14	4.07
600,000— 799,999	13	3.74
800,000— 999,999	8	4.11
1,000,000— 1,499,999	8	4.52
1,500,000— 1,999,999	5	4.23
2,000,000— 3,999,999	4	3.81
4,000,000— 14,999,999	4†	3.57

*In addition to loans and investments, deposits in other banks which are drawing interest and other earning assets are included here.
† Includes two reserve city banks.

to $1,000,000 earning assets), other factors remaining the same, these 10 banks would have earned an average of 11.27% on their capital, or ⅔ more than they are now earning.

Increasing the Volume of Business. The average volume of business per bank depends, of course, on the amount of banking business in the community, and the number of banks. Measured in terms of dollars, the average volume of business per bank increased considerably from 1914 to 1921. The average loans

[2] This figure is higher than the figure for 10 banks in Table VI, largely because all earning assets were considered for the 10 banks, while the Dallas Reserve Bank included only loans and investments.

[3] Gross earnings minus expenses. Losses are not considered here.

and investments per bank of all country national banks in 13 selected states increased from $506,000 in 1914 to $848,000 in 1921, in spite of an increase in the total number of banks (city and country national, state, and other banks) from 9,702 on June 30, 1914, to 11,365 on June 30, 1921.[4] This is an increase in volume of loans and investments of about 67%. But since the new post-war level of purchasing power of the dollar is roughly 1/3 less than that of 1914, the actual increase in volume of business per bank was very small.

TABLE VI. COMPARISON OF EARNING ASSETS AND SALARIES AND WAGES OF 10 BANKS WITH EARNING ASSETS OF LESS THAN $200,000 AND 10 BANKS WITH $600,000 TO $800,000.*

Earning Assets		Amount Paid for Salaries and Wages		Salaries and Wages per Dollar of Earning Assets (in Cents)	
Large Banks	Small Banks	Large Banks	Small Banks	Large Banks	Small Banks
$634,243	$ 99,112	$ 9,330	$ 3,450	1.47	3.48
671,547	170,514	5,603	4,648	0.83	2.73
730,569	183,271	15,190	3,920	2.08	2.14
693,757	103,637	13,500	2,200	1.95	2.12
729,800	189,537	5,269	6,655	0.72	3.51
692,478	153,159	10,540	6,106	1.52	3.99
771,225	138,205	6,135	4,138	0.80	2.99
711,262	159,025	8,454	3,610	1.19	2.27
613,745	121,805	15,649	4,590	2.55	3.77
737,445	133,452	15,154	3,775	2.05	2.83
Average $698,607	$145,172	$10,482	$4,309	1.50	2.97

*Data from reports made to the writer by Texas country national banks, 1928.

On the other hand, the volume of business per bank increased considerably from 1921 to 1926 partly as a result of a phenomenal decrease in the number of banks operating. During this period the average volume of loans and investments of the country national banks in these 13 states increased from $848,000 to $1,058,000, or approximately 25%. With the purchasing power of the dollar fairly well stabilized for the years following 1923, this represents an important increase in the actual volume of business per bank. Although the increase in volume is the result in part of the growth of banking business in many communities, a very important factor in the increase in volume is the decrease of the number of banks operating. On June 30, 1926, 10,191 banks of all kinds were operating in these states, as compared with 11,365 on June 30, 1921—a decrease of approximately 10%. If the total earning assets for 1926 were divided among the 11,365 banks which were in operation in 1921, the average volume per bank would be $949,000 instead of $1,058,000. Roughly then about ½ of the increase in the average volume per bank was attributable to the reduction in the number of banks operating.

[4] Compiled from *Annual Reports* of the Comptroller of the Currency.

TABLE VII. RATIO OF LOANS AND INVESTMENTS TO CAPITAL AND NET EARNINGS OF MEMBER BANKS OF CHICAGO AND PHILADELPHIA RESERVE DISTRICTS.*

Loans and Investments By Districts	Ratio of Loans and Investments to Capital	Net Earnings per Dollar of Capital (in Cents)
Chicago (1926)		
$ 0— $ 250,000	4.35	5.90
250,000— 500,000	5.78	8.14
500,000— 750,000	6.10	9.59
750,000— 1,000,000	6.54	9.93
1,000,000— 1,500,000	6.59	10.21
Philadelphia (1927)		
$ 0— $ 250,000	4.40	7.17
250,000— 500,000	5.22	10.44
500,000— 750,000	5.04	11.04
750,000— 1,000,000	5.10	11.22
1,000,000— 1,250,000	4.95	10.99
1,250,000— 1,500,000	5.27	10.86

*From statistical studies made by the Chicago and Philadelphia Reserve Banks.

TABLE VIII. RATIO OF EARNING ASSETS TO CAPITAL AND NET EARNINGS PER DOLLAR OF CAPITAL FOR 84 TEXAS COUNTRY NATIONAL BANKS FOR THE YEAR ENDING JUNE 30, 1928.

Earning Assets	Number of Banks	Ratio Earning Assets to Capital	Net Earnings per Dollar of Capital (in Cents)
Less than $199,999	10	3.02	6.78
200,000— 399,999	18	4.35	11.03
400,000— 599,999	14	4.14	9.99
600,000— 799,999	13	4.84	9.69
800,000— 999,999	8	5.01	12.10
1,000,000— 1,499,999	8	4.58	10.67
1,500,000— 1,999,999	5	6.41	13.90
2,000,000— 3,999,999	4	7.82	13.75
4,000,000— 14,999,999	4*	9.25	13.72

*Includes two reserve city banks.

The decrease in the number of banks has been achieved in several ways. First, many banks failed and dropped out of the picture between 1921 and 1926. Of a total of 1,261 failures of banks of all kinds in the 13 states from 1921 to 1926, only 34 were re-opened during this period (Table IX).

Second, many banks were consolidated during this period. Up to October 31, 1926, a total of 60 consolidations of national banks alone had occurred in these 13 states.[5] Also, the large number of voluntary liquidations and absorptions by other banks has helped to reduce the number of banks operating.

Third, the Comptroller of the Currency and state banking commissioners have been much more strict in the requirements for a charter than they were prior to 1921. In several states banking commissioners have been granted special and more discretionary powers in restricting the organization of new banks. More thorough investigations are being made of the need for new banks before charters are granted.

With continued care on the part of the Comptroller and the state commissioners in permitting the establishment

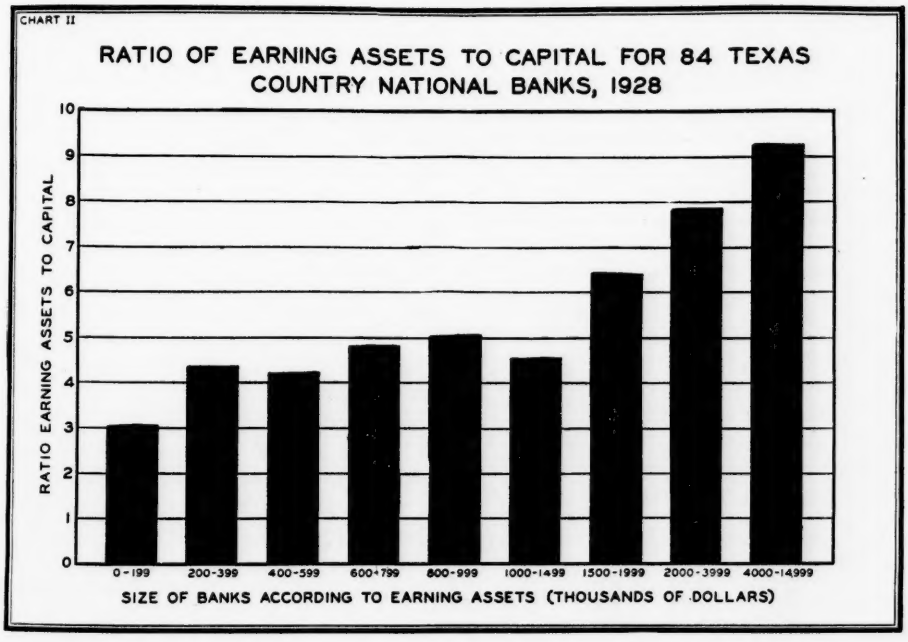
[5] *Annual Report* of the Comptroller of the Currency for 1926, p. 150.

TABLE IX. NUMBER OF BANK FAILURES AND BANKS RE-OPENED IN 13 SELECTED STATES, 1921-1926.*

States	Number of National Bank Failures	Number of Failures of All Other Banks	Total Failures	Total Number of Banks Reopened
Arizona	3	27	30	2†
California	10	9	19	0
Illinois	4	41	45	6
Iowa	31	234	265	5
Kansas	6	102	108	4
Mississippi	1	22	23	1
Montana	53	130	183	1
New Hampshire	0	1	1	0
New York	1	5	6	0
North Carolina	7	68	75	0
North Dakota	33	277	310	9
Texas	24	134	158	5
Washington	6	32	38	1
Total	179	1,082	1,261	34

*Compiled from *Annual Reports* of the Comptroller of the Currency.
†No report 1922–1924.

CHART II



of new banking units, the normal increase in the volume of banking business in agricultural communities will tend to put the country banks in better position to prosper. Many of the more progressive bankers, however, are not waiting for such gradual process to increase their volume. They are hastening the process by consolidation or by absorbing other banks. Also, these same bankers are going after the banking business of their communities as they never have before. Competition is slowly crowding out the smaller and less efficient banks. Possibly chain banking organizations will hasten the process.

Many agricultural towns have only one bank, and the possibility of increasing the volume here depends largely on a very gradual growth of banking business of the community and the ability of the banker to broaden his banking territory by taking customers from banks in adjoining territories. But in communities which have two or more banks, the smaller banks may be absorbed.

On June 30, 1928, 638 national banks and 734 state banks were operating in Texas—a total of 1,372.[6] Approximately 550, or 40%, of these banks were located in one-bank towns.[7] About 440 banks were in two-bank towns, 190 in three-bank towns, and 48 in four-bank towns.

Towns with More Than One Bank. It is interesting to note the volume of business handled by the banks in towns which have more than one bank. Since the figures on earning assets for each of the banks are not available, total deposits will be used as a measure. According to the reports of country national banks in Texas in 1928 and 1929, earning assets are ordinarily 5 to 30% more than total deposits, the percentage decreasing with the larger banks. Of the 220 two-bank towns the banks in 211 towns reported their total deposits. Of the 211 towns, 138 have less than $1,000,000 deposits in their two banks combined; 110 towns have less than $800,000; 76 towns have less than $600,000; 33 towns have less than $400,000; 13 have less than $300,000; and in 4 towns the two banks have combined deposits of less than $200,000 (Table (X). The average volume of deposits per bank is higher in the three-bank towns. Thus only eight of the 52 reporting three-bank towns had total bank deposits of less than $1,000,000 (Table XI). The lowest total for a three-bank town was $516,146. The total deposits in four-bank towns indicate a considerably larger average per bank. The lowest total of deposits for any four-bank towns reporting was $2,643,614.

Tables X and XI indicate the low average of deposits per bank in many of the towns with two or three banks. Another method of visualizing the great number of small banking units is to classify all banks in two-bank towns, three-bank towns and four-bank towns

TABLE X. DISTRIBUTION OF TWO-BANK TOWNS IN TEXAS ACCORDING TO THE COMBINED DEPOSITS OF THE TWO BANKS, JANUARY, 1929*

Total Deposits	Number of Towns
Less than $200,000	4
$ 200,000— 300,000	13
300,000— 400,000	16
400,000— 500,000	18
500,000— 600,000	25
600,000— 700,000	19
700,000— 800,000	15
800,000— 900,000	12
900,000— 1,000,000	16
1,000,000— 1,500,000	39
1,500,000— 2,000,000	18
More than — 2,000,000	16
Total	211

*Data compiled from *Texas Bank Directory* published by the Union National Bank of Houston.

[6] *Annual Report* of the Comptroller of the Currency for 1928.

[7] *Texas Bank Directory* issued by the Union National Bank of Houston, January, 1929.

TABLE XI. DISTRIBUTION OF THREE-BANK TOWNS IN TEXAS ACCORDING TO THE COMBINED DEPOSITS OF THE THREE BANKS, JANUARY, 1929.*

Total Deposits	Number of Towns
Less than $1,000,000	8
$1,000,000— 1,500,000	15
1,500,000— 2,000,000	5
2,000,000— 3,000,000	10
3,000,000— 4,000,000	9
More than 4,000,000	5
Total	52

*Compiled from *Texas Bank Directory* published by the Union National Bank of Houston.

according to size. If we make the liberal assumption that the smaller half of these banks have earning assets equivalent to 25% more than their total deposits, 230 banks, or more than ½ of the total number of Texas banks in two-bank towns, have less than $500,000 earning assets (Table XII and Chart III). The percentage of very small banks is much less in three-bank towns, although the indications are that about 1/3 of these banks have less than $500,000 in earning assets. (Table XII). In four-bank towns probably about 10% of the banks are in this class.

II. Variation of Efficiency with a Given Volume of Business

Aside from the possibility of increasing the efficiency of country banks by increasing the volume of business, the efficiency of a large percentage of country banks may be improved in other ways. On account of the large number of one-bank communities and because of the difficulty involved in the process of the larger and better banks absorbing the less efficient banks, other methods of achieving economies must be relied upon to a great extent. Texas, for instance, has 550 one-bank towns. Many of the banks are very small, and obviously any considerable increase in volume of business will be achieved very slowly. The size of the 526 reporting banks in one-bank towns in terms of total deposits is as follows: 132 banks have total deposits of less than $100,000; 206 have from $100,000 to $200,000 in deposits; 135 have from $200,000 to $400,000; 39 have $400,000 to $600,000; and 14 more than $600,000.[8]

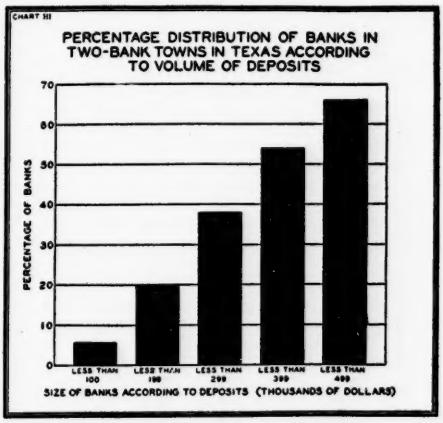


TABLE XII. DISTRIBUTION OF TEXAS BANKS IN TWO-, THREE- AND FOUR-BANK TOWNS ACCORDING TO VOLUME OF DEPOSITS, JANUARY, 1929.*

Deposits	Number of Banks in Two-Bank Towns	Number of Banks in Three-Bank Towns	Number of Banks in Four-Bank Towns
Less than $100,000	20	2	.....
$100,000— 200,000	67	16	.....
200,000— 300,000	78	25	2
300,000— 400,000	65	18	3
400,000— 500,000	50	16	2
More than 500,000	150	102	33
Total	430	179	40

*Compiled from the *Texas Bank Directory* published by the Union National Bank of Houston.

Comparisons of expenses of banks of similar size indicate ample room for increasing efficiency through better management. This applies to many of the

[8] On the basis of the average ratio of earning assets to total deposits of 12 banks (earning assets less than $200,000) on June 29, 1929, the banks in the two groups of smallest banks here had earning assets about 25% greater than their deposits.

larger, as well as many of the smaller, banks. The study of reports of the 84 Texas country banks referred to above indicates astounding variations in efficiency of banks of similar size. For comparison, we shall consider cost variations among 10 banks with earning assets of less than $200,000 and 10 banks with earning assets of $600,000 to $800,000.

A. Banks with Earning Assets of Less Than $200,000[9]

Elements of efficiency in operation will be discussed under (1) earning assets in relation to resources; (2) distribution of earning assets among loans, investments, interest-bearing deposits in other banks, and other assets; (3) comparison of total expenses and various items of expenses; (4) ratio of earning assets to capital; (5) net earnings per dollar of capital.

Earning Assets and Total Resources. It is probable that at least five of the 10 banks could well have invested a portion of their cash and deposits with other banks in commercial paper, bankers' acceptances, or bonds and obtained a considerably higher return than they were getting on deposits. In this connection it should be observed that one bank had 21.4% of its total resources in cash and deposits with other banks and only 26% of this was earning anything. Three other banks were receiving interest on 75% or less of their "cash and due from other banks" (Table XIII).

Distribution of Earning Assets. In the light of the decreased necessity for large amounts of cash in the vault and deposits with correspondent banks as a result of the establishment of the reserve system and in view of the increased availability of commercial paper and other liquid investments, it is interesting to note the distribution of the earning

[9] The reports from 15 banks in this size group for the year ending June 29, 1929, indicate similar ratios.

TABLE XIII. RELATION OF EARNING ASSETS TO TOTAL RESOURCES, PERCENTAGE OF TOTAL RESOURCES IN FORM OF CASH IN VAULT AND DUE FROM OTHER BANKS, AND PERCENTAGE OF CASH AND DUE FROM OTHER BANKS WHICH IS EARNING.*

Bank Number	Percentage of Total Resources Which is Earning	Percentage of Total Resources in Cash and Due from Banks	Percentage of Cash and Due from Other Banks Which is Earning
1	88.4	19.7	87.2
2	76.9	4.6	81.8
3	86.3	17.8	63.0
4	85.1	20.0	75.0
5	74.3	23.0	80.8
6	79.3	12.2	80.7
7	80.8	18.0	77.4
8	84.3	7.4	72.3
9	74.8	21.4	26.0
10	81.1	25.8	78.4
Average	81.1	17.0	72.3

*From reports of Texas country national banks, 1928.

assets of these 10 banks (Table XIV). Obviously, loans yield the largest gross returns and investments are the second greatest earner for the bank. But in some cases the volume of loans available is very small. Thus, bank Number 4 which had only 33.1% of its earning assets in loans happens to be located in

TABLE XIV. PERCENTAGE DISTRIBUTION OF EARNING ASSETS AMONG LOANS, INVESTMENTS (SECONDARY RESERVE), INTEREST-BEARING DEPOSITS IN OTHER BANKS, AND "OTHER ASSETS."*

Bank Number	Loans and Discounts	Investments†	Interest-Bearing Deposits	"Other Assets"‡
1	79.3	1.3	19.4	.....
2	77.3	17.8	4.9	.....
3	55.5	30.4	13.0	1.1
4	33.1	49.2	17.7	.....
5	70.6	1.2	25.0	3.2
6	70.1	17.5	12.4	.....
7	70.3	7.2	17.2	5.3
8	75.6	12.6	6.3	5.5
9	88.8	2.2	7.4	1.6
10	69.3	5.7	25.0	.....
Average	70.0	14.5	14.8	1.7

*From reports of Texas country national banks.
†This item includes what is commonly called the secondary reserve-bonds (other than those securing circulation), stocks, commercial paper, bankers acceptances, etc.
‡Chiefly real estate other than that used by the bank for banking purposes.

a one-bank community. Although it had almost 50% of its earning assets in investments, the "cash and due from banks" item was comparatively high. Bank Number 5 had about the average percentage of its earning assets in loans, but it was top-heavy with cash and deposits in other banks, with very little secondary reserve.

Comparison of Expenses. In the reports expenses are divided into five divisions as follows: salaries and wages, interest and discounts on borrowed money, interest on deposits, taxes, and other expenses. Since the first and last items are more subject to control of the management than are the other three items, comparisons will be made of the combined expense for these items by the various banks (Table XV and Chart IV). The figures indicate that outlay for salaries,[10] wages, rent, supplies, and insurance account for a very large percentage of the variation of costs among the 10 banks.

TABLE XV. COMPARISONS OF TOTAL EXPENSES AND SALARIES AND WAGES AND "OTHER EXPENSES" OF 10 BANKS WITH LESS THAN $200,000* EARNING ASSETS.†

Bank Number	Total Expenses per Dollar of Earning Assets (in Cents)	Expenses for Salaries and Wages and "Other Expenses" per Dollar of Earning Assets (in Cents)
4	3.34	2.89
3	4.45	3.05
2	4.76	3.72
10	4.87	4.03
8	5.06	3.57
7	6.18	4.61
9	6.30	5.41
1	6.45	4.77
6	7.48	5.53
5	7.68	5.94
Average	5.66	4.35

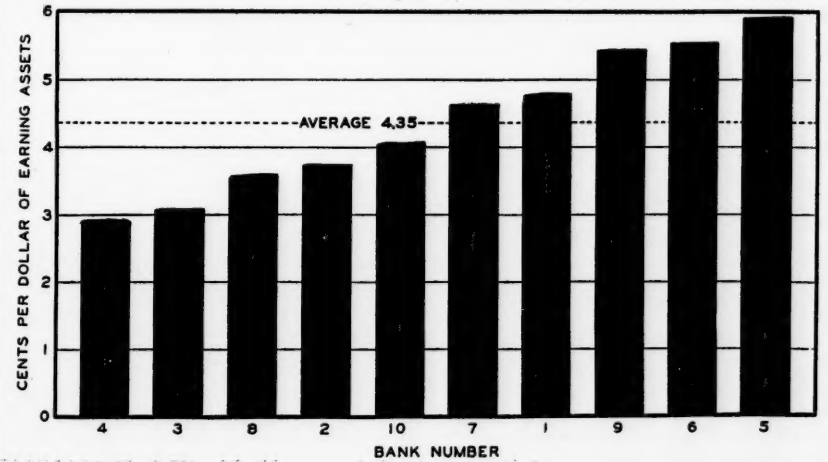
*The actual range of earning assets was $99,112 to $189,537.
†From reports of Texas country national banks.

Ratio of Earning Assets to Capital. The average ratio of earning assets to

[10] Consideration should be given here to the fact that some bankers allot themselves liberal salaries in lieu of greater dividends on stock. This situation is likely to occur only in some cases in which the man who runs the bank owns most of the stock.

CHART IV

EXPENSES FOR SALARIES AND WAGES AND OTHER EXPENSES OF TEN TEXAS BANKS WITH LESS THAN $200,000 EARNING ASSETS



capital of these 10 banks is 3.15. This is a very low average as compared with 4.94 for 18 banks with earning assets from $200,000 to $400,000 and 5.32 for eight banks with $800,000 to $1,000,000. Yet the ratio among the 10 small banks varies from 2.45 to 6.90 (Table XVI).

TABLE XVI. RATIO OF EARNING ASSETS TO CAPITAL.*

Bank Number	Ratio of Earning Assets to Capital
1	2.45
2	3.27
3	3.24
4	2.71
5	2.58
6	6.90
7	2.82
8	2.96
9	2.65
10	2.95
Average	3.15

*From reports of Texas country national banks.

Net Earnings Per Dollar of Capital. The average net earnings per dollar of capital (capital, surplus, and undivided profits) among these 10 banks was 6.5 cents.[11] The range of net earnings was 2.5 to 11.5 cents.

B. Banks with Earning Assets of $600,000 to $800,000

That wide variations in banking efficiency are not limited to small banks is indicated by the fact that 10 banks with earning assets from $613,745 to $771,225 had average net earnings varying from 5.20 to 24.10%. These banks had an average total expense per dollar of earning assets of 3.71 cents. The bank with lowest expense spent 1.71 cents and the bank with highest expense spent 5.69 cents. The average expense for salaries and wages and "other expenses" was 1.50 cents, while the range was 0.72 to 2.55 cents. Similar variations are found among these banks in other phases of banking operations (Table XVII).

Conclusions

While the data presented here indicate that many country banks are too small for the most economical operation

[11] This is the average of the percentages earned by the 10 banks, while the average of 6.78 in Table VIII is the average obtained by adding the actual dollars earned by the 10 banks and dividing by the total capital of all banks.

TABLE XVII. AVERAGE AND RANGE OF VARIOUS OPERATING RATIOS FOR 10 TEXAS BANKS WITH EARNING ASSETS OF $613,745 TO $771,225 AND 10 BANKS WITH LESS THAN $200,000.*

Bank Ratios	Large Banks		Small Banks	
	Average Percentage for Ten Banks	Percentage Range	Average Percentage for Ten Banks	Percentage Range
Percentage of Resources Earning	88.3	81.2–93.2	81.1	74.3–88.4
Percentage of Resources in Cash and Due from Other Banks	15.3	6.6–24.3	17.0	4.6–25.8
Percentage of Cash and Due from Other Banks Which is Earning	76.5	45.2–95.9	72.3	26.0–87.2
Percentage of Earning Assets in Loans	62.7	42.7–80.1	70.0	33.1–88.8
Percentage of Earning Assets in Investments	22.5	7.0–36.7	14.5	1.2–49.2
Total Expenses per Dollar of Earning Assets	3.71	1.71–5.69	5.66	3.34–7.68
Salaries and Wages and "Other Expenses" per Dollar of Earning Assets	1.50	0.72–2.55	4.35	2.89–5.94
Ratio of Earning Assets to Capital	5.14	3.50–9.13	3.15	2.45–6.90
Net Earnings† per Dollar of Capital	9.69	5.20–24.10	6.5	2.5–11.5

*From reports of Texas country national banks.
†Gross earnings less expenses. Losses have not been deducted.

and that many country banks are astoundingly inefficient regardless of their size, it does not follow that concentration of management will remedy the situation. It is reasonable to conclude, however, that chain banking organizations could greatly reduce the cost of operation of banks in many agricultural communities.

Of course, the desirability of the development of chain banks or a system of branch banks is not determined entirely by the economies which they may achieve. Lower costs are not necessarily followed by lower charges to bank customers. Neither are lower costs and lower charges for bank services the only factors to consider. Conceivably, for instance, the management of a system of chain banks might reduce costs by reducing payments on deposits or reducing certain services which the ordinary independent bank renders without charge. Also, absentee owners might not be sufficiently familiar with the needs of the community to be able to direct credit into the most desirable channels.

Other possible objections to concentration of management for country banks might be presented, but these are sufficient to indicate that cost of bank operation is not the whole consideration. On the other hand, operating costs are very significant in the determination of bank earnings, and the indications are that country bankers who do not adopt modern methods of management are likely to experience some real competition within the next few decades. The figures presented above show that there is ample room for improvement, whether it be made by managers of bank chains or by independent bankers.

ECONOMIC CONSIDERATIONS IN THE LONG DISTANCE TRANSMISSION OF GAS

By MARTIN T. BENNETT

THE tremendous increase of the transmission of gas through pipe lines over long distances has led many to expect a development that in time would equal the present stage of electrical interconnection. In fact, a neat analogy based on the economic and scientific aspects of the two may be drawn, but certain limitations reduce the value of such an analogy. A great amount of study has been given to the economics of electrical transmission, much of which can be applied to gas transmission, but two serious factors change the problem. These are: (1) gas can be stored quite conveniently, which reduces the necessity for interconnection at least as far as peak loads of short duration are concerned; and (2) electricity can be "compressed" (i. e., the voltage increased) very cheaply to a much greater extent than can gas, which makes transmission lines of large capacity comparatively more costly for gas.

The large development of natural gas transmission lines may be compared to developments in the hydro-electric field. Originally natural gas and hydro-electric power represented large, cheap sources which were distant from market, and transmission was necessary if the resources were to be utilized.[1] However, natural gas was seldom sought directly. It just came to the oil drillers and when it had brought up some oil, they were glad to be rid of it. Whenever they found a market that would justify an investment in transmission mains, they laid the pipe in or on the ground, and allowed the natural pressure in the earth to move it. Before very long these mains were spread over a considerable area, but only when the supply began to run out did the owners of these lines begin to realize that they had a large business with a large investment.

Naturally, therefore, if comparatively cheap sources of manufactured gas were available, it could be transported much the same as natural gas. It is true that the specific properties of manufactured gas increase the cost of pumping it through pipes, but the sources of this gas are located nearer to a market where such a fuel is more valuable.[2] The largest sources of cheap manufactured gas are the coke oven plants where coke is produced usually for the reduction of iron ore and the gas is a by-product. These plants have a surplus of gas which they must dispose of at the best price

[1] Hydro-electric power is no longer to be considered necessarily a cheap source of power. The ever increasing efficiencies and economies of central steam generation have reduced the cost of such power to approach that of the best hydro-electric plants which probably are as near to perfect efficiency as they will ever be. The result is that it is no longer economical to develop remote large-scale, hydro-electric stations except in localities where fuel is costly, because of the large investment required to reach the market.

[2] Manufactured gas usually has about half the heating value of natural gas and twice the amount has to be used to do the same work, and therefore, requires twice the main capacity to serve a given territory.

It should be remembered that the word gas is used in this discussion in the general sense. Natural gas is composed mostly of methane and ethane. The composition of manufactured gas varies greatly, depending on the methods of manufacture. Most gas is made by destructive distillation of coal and contains largely hydrogen, methane and carbon monoxide. The next most common is the so-called carburetted water gas made by thermal decomposition of steam by hot coke or coal plus an enrichment of "cracked" oil and is composed largely of carbon monoxide, hydrogen, and unsaturated hydrocarbons.

they can get. This gas must be delivered at a price lower than what it would cost to produce the gas in the communities where it is to be distributed.

However, many companies are producing gas on a large scale and are quite willing to invest in large-scale extensions for the purpose of expanding their market. These are the larger plants where production costs are so low that the difference in their production costs and the costs of smaller plants at the towns to be served will justify the necessary investment in mains. There may be other communities also which are too small to justify a local plant but which can be served from the interconnecting lines.

In centralizing gas production, three sources of economies are available: (1) a lower production cost by producing at one plant instead of several and a reduction in the operating cost by reason of the additional load on that plant; (2) a reduction in the production investment because of the diversity of the additional loads; and (3) elimination of investment in production equipment at any of the communities served. These are offset by: (1) the cost of pumping the gas; (2) the losses of gas in the transmission system; (3) the investment in the transmission and pumping equipment; and (4) the retirement expense of any plants or properties that would be superseded by the transmission line.

Each prospective transmission line, of course, requires a detailed study of its own, but an illustration may be given which will show the possibilities of this type of enterprise. Mr. L. A. Kirch has offered the two tables (Tables I and II), which show the effect of increasing the scale of production upon operation and investment costs.[3]

It can be seen that as the daily production falls below 1,000 MCF per day the costs rise very rapidly. Since very few towns of less than 35,000 population use over 1,000 MCF per day, clearly the economies are to be greatest if enough smaller cities and towns can be served.

TABLE I. VARIATION OF PRODUCTION COSTS OF GAS WITH INCREASING OUTPUT *

Average Production MCF Per Day	Difference in Cents Per MCF† from 12,000 MCF Production	
	Carburetted Water Gas	Combination Coal and Water Gas
12,000	—	—
6,000	2.5	5.0
3,000	5.5	10.0
1,000	10.0	15.0
500	20.0	25.0
100	42.0	No data available

*"Under production costs, cost of fuel, condition of equipment, and load factor were taken to be the same; due allowance was made for labor conditions and class of supervision; type of equipment which could be justified for the size of the plant in question was taken into consideration. The combination plant would consist of 50 per cent coal and 50 per cent water gas capacity with fluctuations taken care of by water gas.

"As an example: the cost of making water gas in a plant of 6,000 MCF average daily send-out would be (10-2.5 = 7.5) 7.5 cents per MCF less than in a plant of 1000 MCF average daily send-out."

†MCF = Thousand cubic feet.

Large plants usually use some form of distillation of coal for "base load" gas, while carburetted water gas is used to carry peak loads. The coal gas process requires more investment, is less flexible in operation, and involves the disposal of large quantities of its by-product, coke. Carburetted water gas costs more for materials, but the equipment is less expensive while it may be started or stopped almost at will. This makes it particularly adaptable for taking care of peak loads. Fluctuations

[3] "Study of the Economics of Long-Distance High-Pressure Transmission with Minimum Centralizing Manufacturing Centers," *Report* of 1927 Subcommittee "C" of the Distribution Committee of the American Gas Association (*Proceedings*, A. G. A., 1927, p. 976).

This same Committee brought in a report in 1928 which is a study of the possibilities of serving a hypothetical group of communities by alternate methods. This shows very clearly the type of investigation that has to be made. (*Proceedings*, A. G. A., 1928, p. 930).

in demand during any one day are usually absorbed by storage capacity, but seasonal fluctuations can only be absorbed by excess plant capacity.

By taking on additional territory a company may secure considerable diversity of load so that a large portion of the additional demand can be taken care of by excess plant capacity that formerly had been reserved for seasonal fluctuations. Economical design of a long-distance transmission system of any size requires storage facilities at or near points of large consumption and this additional storage further helps to diversify the demand on the plant.

TABLE II. VARIATION OF PRODUCTION INVESTMENT COSTS OF GAS WITH INCREASING OUTPUT.*

Average Production MCF per day	Difference in Cents per MCF from 12,000 MCF Production	
	Water Gas	Combination Coal and Water Gas
12,000	—	—
6,000	3.0	4.5
3,000	6.0	9.0
1,000	9.0	13.0
500	13.0	17.0

*"The same daily load factor was used for all cases, and carrying charges were figured at 12 per cent.
"As an example, the investment saving in a combination plant, of an average daily send-out of 4,000 MCF over that of a 500 MCF average daily send-out would be (17-9 = 8) 8 cents per MCF.
"The above tables are based upon operating and construction costs as experienced in the northern half of Indiana."

Some of the apparent economies of a large coal gas plant might not be effected, if it were not possible to expand the local market for that plant's coke. Approximately 100 pounds of coke are produced for every MCF of gas put out. If some of this had to be loaded and shipped to outside markets, it might cost in the neighborhood of $3.00 per ton, which would correspond to an increase of 15 cents per MCF for the cost of the gas represented by that coke. Some surplus coke could be used for the production of water gas in a combination plant, and although surplus coke is often a problem, it is not necessarily a decisive one.

Pumping costs depend on the design of the system and upon the distance the gas has to be transported. These costs increase with an increase in the pressure that is used, but higher pressures mean a very considerable increase in the capacity of the pipe. Again, the question is one of balancing operating costs against fixed costs and the question of pumping costs involves a consideration of capital costs on the pipe line.

For instance, if the pressure on a given line were increased from 50 to 100 pounds per square inch, the capacity of the line would be increased about 40%, entailing an additional pumping cost of less than two cents per MCF. The same result could be accomplished if the diameter of the pipe were increased 15%, which would involve roughly a corresponding increase in the cost of the pipe line. This is not a practical example, however, as the standard sizes of the main differ by more than 15%, but it at least demonstrates the variables that have to be considered.

As a matter of fact, most manufactured gas systems are designed for pressure approaching 100 pounds per square inch. This is about as high as has been found practical with manufactured gas, as the higher pressures affect the composition of the gas. Natural gas lines run up to pressures two or three times as high. Many systems have been put in larger than is necessary in order to allow for future demands and are being operated at lower pressures for the present.

Gas transmission lines are comparable with electric lines if the distance is not too great and if the lines are not too small. A city of about 20,000 population would require an electric line to feed it which would cost about $3,300

per mile. This price would come very near to providing the same city with a three-inch gas transmission main which would be adequate, if the distance were less than 50 miles and if local storage were provided. A single electric line, however, would hardly be adequate for a city of this size and either standby generators or some other auxiliary source of power would have to be provided to prevent interruption. Local storage of gas would be sufficient insurance against ordinary interruptions which would make the gas system appear somewhat more economical. For cities smaller than about 20,000, it would be much cheaper to serve with electricity than with gas. Furthermore, the electric business would bring in a larger revenue, as it has more uses than gas has at present and is considered more of a necessity.

Gas can be used for power and lighting, but it is no competitor of electricity in these fields. The electric industry has tried to build up a heating load, but gas probably will be the most used source of refined heat for some time to come. Because gas can be utilized so much more efficiently than any other fuel, it can compete with other fuels that are considerably cheaper. This is especially true in all the domestic heating requirements except space heating. However, when the price of gas goes above $2.00 per MCF the competition of other fuels makes it difficult to build up even a cooking load.

Results in new territory that has been opened up recently to high pressure lines have proved encouraging. The most important consideration in surveying prospective extensions is the estimate of the probable load and revenue. Experience shows that although some customers are with difficulty induced to take service, those who do take it usually yield more revenue than older customers who have been using gas for some time. New territory is usually given an inducement type of rate that encourages consumption by rapidly lowering the price as the consumption increases, while older territory has older types of rates. An equally logical explanation is that gas consumption is largely a matter of habit and it is easier to get a consumer to acquire a new habit than to get him to change an old one.

A new method of making gas has come out within the last year that may have some effect upon the development of interconnection. This process utilizes an extremely volatile gasoline (composed largely of butanes) which can be mixed with air to produce a gas equal to that manufactured by other porcesses. The advantage of this process is that it is economical for considerably smaller units than have been heretofore considered practical. Present indications are that this process will enable a group of consumers as small as 400 to be served as cheaply as many of the smaller cities are now served. There are about 200 cities in this country over 5,000 and many between 3,000 and 5,000 population which have no gas service. A few smaller than 5,000 have local plants but they have generally been unprofitable. While many of these would never be reached by high pressure lines, this development will limit the distance over which it will be more economical to run pipe lines to small communities.

Unquestionably some lines have been run that cannot by themselves be justified as an investment except by the most optimistic hopes for the business to be obtained. The majority of these extensions have been made to enclose territory for the company and immediate return is a secondary consideration. Some of the larger combined companies, having developed a fair electric cooking

load in smaller cities, now have to run a gas line to prevent some other company from entering the market. These expenditures for the purpose of holding territory are justified from the company's point of view if the gas business is to expand as greatly as the electric business has. Present indications point to such an expansion as the result of nationwide distribution of natural gas.

There is no doubt that most of the central states will be covered by a network of natural gas lines within five years. Northwestern Missouri is now served by four large lines from Texas and Oklahoma, lines are now in St. Louis and will soon go into Chicago. Eventually these lines may connect with coal carbonization plants which will be located at the mines and the resulting mixture will be distributed over still wider areas. Large quantities of cheap gas will then be available at especially favorable rates for high load factor users.

The extended distribution of gas will assist the migration of industries to the smaller communities. More and more gas is coming into use with the automatic machine productive equipment, since it is the most easily controlled fuel. Most industrial processes require heat in some part and, if the present trend toward cheaper gas continues and if a lessening of the cheap fuel supply appears, the more efficient fuel will be more used. If this fuel is to be available in the smaller cities, it will be one more factor leading to a healthy decentralization of industry.

Much gas that could be recovered from coal is now sent out of chimneys of inefficient furnaces. If the demand for gas becomes large enough and if the transmission facilities contiune to increase, large gas plants will be located at the mine mouths to remove the gas and by-products from the coal and the remaining coke can be shipped for power generation and other uses. We may look even further ahead to the time when the processes for turning coal entirely into gas have become developed sufficiently to allow all coal to be first converted into gas at the mines. This would result in solid fuel becoming as obsolete as candle light.

REFLECTIONS OF A CITY PLANNER ON HIS PROFESSION*

By JACOB L. CRANE, JR.

I. A Critique of Contemporary City Planning

AS nearly as I can appraise their motives the city planners work to make a living (an inadequate motivation since with few exceptions this seems difficult), and they work to express their uncontrollable passion for building and rebuilding cities according to their own personal hearts' desires. In this we are taking the wrong angle of approach, since plainly the towns should be designed to please the townspeople rather than the town's planner. The project of a city plan should properly be a collaboration between the community and the planner, the latter collecting data and suggesting modes and manners of planning, and the community, in turn, rejecting, suggesting, and finally in large measure selecting its own future design.

In this sense there is and can be no profession of city planning, if by that we mean the attempt of an individual or a group of experts to impose their notions of city planning upon any city structure before those notions have been assimilated and retouched by the people. Further, let me cite three other factors which, while they do not destroy the high purpose of American city planning, do place some limitations upon what we can claim for it under the existing situation. First, with a little thought it becomes evident that conscious city planning cannot be completely successful generation after generation except under a system of public ownership or control of land. The authority of eminent domain and of police power (for example, in zoning) has reduced private ownership almost to a status of leasehold subject to the public welfare; but with the inalienable right of exploiting land values remaining intact, the processes and purposes of city planning are necessarily and severely limited.

Second, the mind of the professional student in city planning is likely to be encumbered with images and forms drawn from earlier and now perhaps out-of-date city building. As with architecture, where the skyscraper idea found its inevitable expression through the work of the structural engineer rather than through the tradition-bound architect, the essential style of the modern city is taking shape more in spite of, than with the help of, professional planning theories. Our land planning is a curious mixture of early land surveying, Hausmann's Paris, the romantic English landscape, and the traffic-relief street. Our imaginations are full of LeNotre and Repton, and we are only slowly accepting the wide connotations of the modern machine-age trend as it may affect city building, as it actually is affecting city building whether we are planning for it or not. We professionals are likely to fall short of being modern in our planning because we have difficulty in being Moderns ourselves. Many of us have an instinctive aversion for the industrial city with its make-money ideal and its hurry, noise, dirt, and confusion. A colleague during a heart-to-heart talk began, "We city planners and the others who hate cities . . . " therein fully stating this point. Our planning attempts to recapture

*Adapted from a recent address at the Harvard School of City Planning.

what seems now to have been the beauty and dignity of cities in the time before Stevenson's steam engine started changing the world. Tradition and education have reinforced this anachronistic position of the planners. Concord and Williamsburg, for the small towns, radial boulevards and axial public buildings for civic centers, and the "naturalistic" style for land subdivision have produced much good and some distinguished and lovely work, but they are not to my mind a direct and logical expression of our American life just now emerging. In fact, I believe they have obstructed the development of new styles which are inherent in machine-age life and which will force their way through whether we like them or not.

Third among these skepticisms is the one most damaging to my confidence in city planning. It seems at least doubtful that we can now prepare city plans which will remain valid long enough for them even to be carried out. Many embarrassing examples can be found of unavoidable errors in making what seemed to be far-sighted plans for city growth, such as the famous crosstown street system on Manhattan Island. The other day I drove along the old Illinois-Michigan barge canal, built only about 60 years ago, at a cost proportionately as large as our contemporary highway systems, and expected to serve for a great artery of commerce. It now winds gracefully and placidly between trim, willow-lined banks—beautiful, unused, forlorn. Again, the country is full of abandoned interurban and city street-car lines. In the face of this and much other testimony how can we anticipate less startling changes in the future? I cannot feel badly when some salty-minded alderman seems skeptical about proposals based on any idea of permanence in present modes of transport.

How can we be sure that even the most carefully thought out street plan will not in 25 years be found absurdly inadequate or, still more unsettling, absurdly grandiose in the light of possibilities for human circulation even now conceivable? It is imaginable that in a relatively brief time the citizens of a completely decentralized Chicago regional city will visit the magnificent lakefront park development, and amusedly comment that the people who formerly lived in the crowded apartment city must in those old days have enjoyed greatly the beaches and lagoons.

This thought leads me to emphasize in my work the common sense of the control and guidance features of city planning rather than overly-expensive reconstruction projects. Reconstruction projects, when completed, are relatively fixed; on the other hand, a scheme for guiding city growth affords more flexibility in meeting our rapid machine-age changes.

II. Preliminary Procedure in Making a City Plan

Since a plan for a given town must be based upon the peculiar conditions prevailing in that town and be expressive of those characteristics, it is important that the planner should first acquaint himself thoroughly with the town. This can only be done by living there for some weeks or months until he has the idea of the town and the ideas of the townsfolk for their town. All plans, to be effective, must, I believe, be a statement of the townspeople's own matured image of what the community may and should be. Then comes the thorough civic survey and finally the plan. In making that plan the standards of others are useful only as guides.

No standard has been tried out long enough to be called final, and every day

some new angle of our life affects them. For each town work out standards for traffic lanes, recreational acreage, zoning classifications and regulations. Keep the standards high. After the skeleton design is fairly determined, then attention should be given to detailed studies at larger scale.

A large-scale design for a difficult street intersection may influence an important part of the entire major street pattern, and also it may affect the building lines and the zoning to be imposed upon the abutting property. Do not forget to forget all the earlier mannerisms or styles in city planning. Our cities should not and cannot be modeled on European images, nor on any other but our own. Let the American city emerge. It will seem bad at many points, but whether with our acquiescence or in spite of it, it will force itself through, and it has its own magnificent possibilities. We are only acting as midwives at the birth of the American city style and all our cities have yet to grow up and be rebuilt once more or twice or three times. Primarily remember that science and the machine have changed our thinking so that we no longer view the world or any part of it in the measurable limits of Euclidean geometry. In every phase of life we think now in terms of unlimited extension. No American town imagines a definite end to the changes in its physical structure, and few envisage an end to their growth outward and upward.

Underlying your city plan get the essential pattern of the city on its individual topography. Street and railroad lines establish a certain form, as also does the zoning plan. They should define the basic frame work within which and out of which the city develops. The typical character of the growing American city is more *moderne* than any Cézanne. Its seeming formlessness is an element of its modern character. It is not classic. Its balance and composition are seemingly "cock-eyed." But it has its organic dynamic form in the same way that a population curve or the plotted curve of a higher mathematical formula has its form, definite but not limited. Our study must be directed not toward discovering what a city plan should be, as though that were a static predeterminable thing, but first toward learning what this American city is and what this city tends to be.

III. Separate Features of the Plan

When the civic survey is completed and assembled I find it necessary, first of all, to make plans in the most tentative way for the four primary elements—railroads, highways and streets, zoning, and parks and parkways. These four are so closely interdependent that they have to be worked out by the method of trial and error until they fit together in one plan.

In making proposals for railroad rearrangement or improvements, such as the relocation or the elevation or depression of tracks, I find that the limit of feasibility is not necessarily what the railroad can be induced to do, but rather what the city can reasonably arrange to finance over the period for which the city plan is made. I have run across several instances where railroad commissions have actually ordered the railroads to make certain improvements, generally grade separations, which had to be deferred until the city could arrange for its share of the cost.

The development of an adequate street system involves several fairly well established procedures. First, we now generally have the power to require dedication of streets where they belong and of the proper width as new subdivisions are laid out. Widening, which,

as with every other element of the city plan, must be kept within the reasonable anticipation of the city's capacity both to devote funds and to apply the necessary labor and interest, can be protected for later actual accomplishment by supplemental building lines to keep new buildings back of the proposed widening line. Here additional statutory power is at least desirable in most states. Further, I find that such supplemental building lines cannot be established offhand without a careful study of each block and each piece of property involved. A building line which affects the sideage rather than the frontage of a lot offers difficulty in that it is likely to interfere with the use, or at any rate, with the sale or lease value of the land. For establishing supplemental building lines we now apply a general rule that they should be proposed only for property zoned for business or industry but not now occupied by permanent buildings for one of these uses; and further, on no lot where the building line would deprive the owner of so large a proportion of the lot as to interfere with its lease or sale. In any street widening project the application of this rule will leave certain points where the widening cannot be protected by a building line and where the actual taking of the necessary ground should be a matter for early action by the public authorities.

In setting up our program for street development we are carefully classifying the different improvement methods to be considered for use in each specific case, so that the city officials will have a definite suggestion of the wise procedure without having to work it all out for themselves, which as a matter of fact they will rarely do. It seems to me almost unavoidable that a city plan will propose more street widenings and openings than the city can be expected to carry out and this has led us to close study to reduce the projects to the simplest and least costly form. For example, in some cases where existing buildings are close to the street line we have been forced to propose pavement widenings back to the sidewalk without actually widening the street right-of-way by the taking of property. I do not consider this ideal by any means, even though trees may be planted inside the sidewalks in lieu of planting in the parkways. In fact, I frequently regret that, in what seems to be the inevitable concentration upon the more urgent utilitarian features of a city plan, the extremely important element of parkway planting from the esthetic standpoint has to be relegated to the position of an incidental item in the program.

In preparing a zoning plan for the usual industrial city the industrial districts should generally be mapped out first. They must, of course, be related to existing factory areas and to the railroads and the possibilities of new trackage. Even if all land which seems at all available or logical for industrial use is assigned to that zone, no great amount of residential territory will be encroached upon and generally the business interests are better satisfied by the assurance that no hampering effect upon industrial development will be felt by virtue of the zoning. In designing business districts the various formulae set up, such as 50 front feet of business per 100 prospective population, are useful as a check. But the frontage of business in actual use per unit of population should also be calculated for the individual city and applied with judgment. For the spacing of neighborhood business centers I have recently been inclined to intervals of less than a mile between them. I am told that more than half of the groceries, meats, fruits, and bakery goods are

carried by hand from stores and not by delivery or by the purchaser's automobile. By spacing neighborhood business centers two-thirds of a mile apart the requirements are pretty well met. Of course, in western practice this is not always easy where business naturally grows up at the crossings of main roads rather than at intervals between them. However, the street system design and the logic of locating business away from rather than at the most congested traffic centers make possible a varying distribution of these small business groups.

In making plans for the future park system of a town some advantage is to be found in abandoning the attitude of moderation and instead suggesting as "suitable park land" all property which may come within that classification, even though it far exceeds a standard ratio to the prospective population. It is nearly impossible to foresee just which or how much park acreage will capture the public imagination and be acquired. Further, in many towns the wealthy men are going in heavily for park-land gifts, and also many new agencies are being created, such as county park boards and state park commissions. If any one thing is needed in the contemporary American industrial city it is an enormously greater amount of green open space, and, while the standard of one acre of park per 100 population seems to be high now for many cities, it will, I hope, be considered an absurdly small figure in a few years. The approximate location of future school sites on the city plan and the stimulation of school boards to acquire them is one good way of getting support for the unique advantages of city planning.

For a few years much was said about the desirability of requiring each subdivider to dedicate 5% or 10% of his subdivision for park or playground or school-site purposes. I feel that this has not worked out satisfactorily. These sites should be located and arranged in a rational, planned manner and isolated plots of sometimes even one acre or less are of small usefulness. Conversely, it is not usually feasible to require a subdivider to dedicate five acres or 25 acres to public use. As an alternative, we are now requiring the subdivider either to dedicate or to reserve for a period of not less than one year after notice to the proper authority, such land as the plan indicates for park, playground, or school-site purposes. This arrangement gives the school board, the park board, or the city an opportunity to acquire or contract for the land before it is actually subdivided, and it gives the subdivider assurance that he will not be indefinitely held up for any part of his project.

It is the customary plans for civic centers that I object to most violently on the ground that they are set up on European models. They tend to be classic, symmetrical, static, and as such fail as an expression of American civic life. An articulate, functional, asymmetrical ground plan and a bold design of each feature, not necessarily pretentious or costly, will be more appropriate.

IV. Influences Tending to Change Planning Practice

Airports. The exciting topic of air travel supplies one of the most interesting new influences in city planning. Is there a man with soul so dead that he has not enthusiastically supported the idea of more and more 160-acre airports? Probably not. And I believe they will all be needed as air transit centers—the terminals, classification yards, shops, and training schools. But I feel confident that the small air-machine will soon be developed to land and take off with safety in a space of one or two city

blocks. In anticipation of this event, we are now in our city plans selecting sites not only for the large outside airports, but also for numerous fairly close-in, small fields, preferably with water-basins alongside. I believe we may expect these small fields to be spaced eventually in somewhat the same way that we space grade schools, within walking distance of every part of town. It seems to me a modest expectation.

Zoning. Two marked tendencies are noticeable in zoning: (1) the greater and greater refinement of zoning regulations within city areas, establishing more specific and in some cases more severe, requirements for lot sizes, variations in building lines from block to block, or even within blocks, and for private parking and play space; and (2) conversely the application of broader, more general zoning over much larger areas through county or regional authorities. As I see the rigid classification and segregation of industrial, business, and residential districts tend to break down in some cities under the pressure of changing conditions, I have been interested by the idea that zoning might take the form of area regulations only, dividing a city up into districts where any use might be placed so long as it conformed to the set-back, lot-size, and yard requirements. In a Class A residential district, for example, a light industry might be located so long as it occupied not more than 5% or 1% of the lot area and provided yards on all sides at least 20 times or 50 times as great as those required for residential buildings. Most factories, particularly the heavy ones, will without zoning locate near railroads, but some lighter, electric-powered works might well be placed in the neighborhood of their own operatives. Plainly we are working counter to one phase of city planning theory when we confine all industrial working places to areas most remote from residence so that transportation becomes more and more difficult, irksome, and expensive. The same is true of at least the central business districts. Decentralization and the industrial garden city are, of course, aimed at this difficulty, but they may not offer an adequate solution.

Subdivision Control. The control of land subdivision is for most American cities one of the urgent and one of the most valuable phases of a city planning program, and this control has tended to become more and more specific. However, its full purpose cannot be realized until four new elements are introduced. First, subdividing and selling land by "metes and bounds" as a means of avoiding platting regulations must be prohibited, and this requires new statutory power. Second, the subdivision and marketing of land should be restricted, in location and in amount, in a definite relation to the requirements of the community or district. This again requires an extension of legal authority. Third, the design of all subdivisions should, I believe, be made by the city or county, as the case may be. Only in this way can the requirements both of the subdivider and of the planned development be adequately met. At present the realtor, the surveyor, the engineer, and the city are all put to great inconvenience by the round-about process of submission and revision of tentative designs. Fourth, the planning authority should have power to specify and require the imposition of restrictions upon the subdivision. This is particularly important for plats lying outside of corporate zoned areas, where the actual use of the property can be controlled only by these restrictions.

Street Layout. In street development two interesting tendencies are just now making themselves felt. First is the construction of highway grade separations

at overcongested highway intersections, and the reservation in subdivision platting of sufficient ground at such intersections to make the grade separation feasible in the future. Second, the use of stream beds for parkways of various types is taking hold of the public imagination. They provide streets in a beautiful setting, often where it is most economical to build them, and they make possible a great saving of funds which would otherwise have to be devoted to the construction of storm sewers. There are many variations of parkway design, not the least interesting of which is the simple public reservation of these water courses or ravines between what would be called the rear of lots and in which no roads are built, the ground being used only for safe, beautiful play-space and for storm water run-off.

The double-deck street is an acknowledgment of failure in sensible city building. Nevertheless, if the concentration of business and the construction of skyscrapers in the downtown districts of our big cities continue, I see no other alternative than double-deck or three-deck streets with overhead pedestrian ways. Plainly great advantage is to be found in the concentration of office business within a small area and the pressure of investment and speculation in land and buildings also forces concentration. If our big cities do not definitely begin to break up within the next 25 years, I look to see the classification and segregation of various types of business within these central districts and the three-deck streets serving them. The tendency, already well started, for each business group to localize itself and the possibility of definitely planning this segregation should be recognized. It is not difficult to arrange a design for a logical grouping of activities, and having done so the advantage of keeping related groups close together seems to be even more obvious. In the way that our city business is now done it will be most convenient, even though in the abstract insane, to build 50 stories high and provide transit subways, haulage streets, passenger auto streets, and pedestrian ways at three or four different levels. It is, I feel, a frantic dance of death leading to an ultimate collapse, but I suspect that it must be danced out.

Residential Land. In residential land planning the principles underlying Radburn admirably illustrate the new tendencies, namely, long uninterrupted blocks on traffic arteries with intersection grade-separation; individual or group houses or apartments on secluded cul-de-sac streets; interior playgrounds and parks; and school sites accessible to a large area without the necessity of crossing through traffic at any point. Radburn is experimental and not entirely successful, but it is a pioneer operation, destined, I believe, to influence greatly American residential planning.

Regional Planning. Regional planning has just well begun and it has to my mind great possibilities for the planner, as well as for regional development. State planning is bound to follow. Wisconsin has recently been added to the small number of states with state-wide planning departments.

V. Conclusion

I find that no matter how carefully the plans are drawn, nor how officially they are adopted, no individual or group in a city can possibly make them effective with success unless the planner is available to interpret, re-adapt, adjust, promote, and follow them up month by month as the elements to which they apply arise. By this I do not mean that a city plan, having once been prepared and officially adopted and paid for,

should be considered final and fixed. Quite the contrary, an extremely important function of the planner is to sense the sentiment and ideals of the town, to appraise new conditions and new tendencies and facilities, and to readapt or even to abandon and remake any item or items in the original set of plans. This is a service fraught with great difficulty. It is sometimes almost impossible to distinguish between a selfish motive on the part of a citizen and a genuinely valid change in the conditions. An almost psychic sense is required. But this is only one of the ways in which city planning is among the most difficult professions in the world, and to me certainly the most interesting.

REGULATION OF PUBLIC UTILITY INTEGRATION ON THE PACIFIC COAST

By BARCLAY J. SICKLER

PUBLIC utility integration may be defined as the collection of several public utility properties under one ownership. These properties may be so located as to make physical connection possible, or the connection may be merely through common control of management. The first of these may be called physical integration, and the second managerial integration. Another basis for classification is that of the nature of the ownership; whether control is vested in a public utility corporation or in a non-utility company, ordinarily a holding company. A utility may control other utilities either through stock ownership or through direct ownership of the properties integrated.[1] Holding company control is usually through stock ownership.

Integration of public utilities creates several difficult problems for the regulatory commissions. All types of integration bring up the question of regulating purchase prices paid for the utilities. When rate cases arise, the commission must decide whether the purchase price shall influence the rate-base, and if so, to what extent. Where the purchaser is also a public utility, if the commission has jurisdiction over security issues, the question arises as to how much of the purchase price may be capitalized. When a utility is purchased by a holding company, control of purchase prices is particularly difficult. Holding companies, not being regarded as public utilities, are not subject to commission control, but it is contended that the amount of their security issues has a direct effect on their subsidiaries, and through them on rates charged the consuming public. For this reason their overcapitalization on the basis of inflated prices paid for subsidiaries is said to be of concern to the commissions regulating the operating companies.

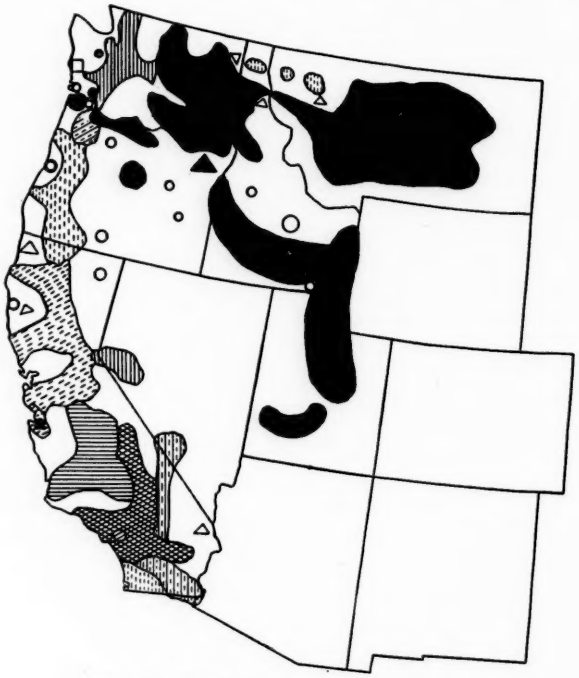
Another type of problem which arises where control is maintained through stock ownership is that of regulating intercompany relationships. These may be either between two subsidiaries, or between parent company and subsidiary. When both companies are subject to the control of the commission, as when both are local utilities, these relationships are comparatively easy to regulate. But when one of the companies is not a local utility and therefore not subject to commission supervision, control is particularly difficult. The problem is of importance because contracts of subsidiaries with holding companies for financial, managerial, construction, purchasing or other services become potential agencies for "bleeding" subsidiaries, and through them the consumers. These agreements, which are sometimes alleged not to be bona fide contracts because the parties are not independent, are difficult to regulate both legally and practically.

The important types of problems connected with integration may be summarized as follows:

1. Problems connected with regulation of purchase prices, and of the weight to be given to such prices

[1] This statement refers to the most common methods of integration of control among so-called "local" utilities. There are, of course, other methods of control such as leasing, which are more frequently used by carriers.

EXTENT OF INTEGRATION OF ELECTRIC UTILITIES ON THE PACIFIC COAST - 1929*



LARGE GROUPS
CONTROLLED BY HOLDING COMPANIES
- ELECTRIC BOND & SHARE COS.
- H. M. BYLLESBY COS.
- STONE & WEBSTER COS.
- NORTH AMERICAN CO.
- PUBLIC UTILITY HOLDING CO.
- NEVADA-CALIFORNIA ELECTRIC CORP.

LOCALLY CONTROLLED
- PACIFIC GAS & ELECTRIC CO.
- SOUTHERN CALIFORNIA EDISON CO.
- LOS ANGELES GAS & ELECTRIC CO.

SMALL GROUPS
CONTROLLED BY HOLDING COMPANIES
- PEOPLES POWER & LIGHT CO.
- PUBLIC UTILITIES CONSOLIDATED CORP.
- FEDERAL LIGHT & TRACTION CO.
- NORTH AMERICAN GAS & ELECTRIC CO.
- WISCONSIN SECURITIES CO.

LOCALLY CONTROLLED
- STANDARD OIL CO. OF CALIFORNIA

*The size of the symbols representing "small groups" is approximately proportional to the areas actually served by these groups.

in determining rate-bases and in allowing security issues.

a. Of particular importance, because of its difficulty and because the desirability of such control is not yet settled, is the control of purchase prices paid by holding companies for utility properties, and of the effect of these prices on holding company capitalization and on the rates and service of subsidiaries.

2. Problems arising from intercorporate relations of affiliated companies, chiefly concerning the regulation of contracts for managerial and other services supplied by the holding company to the operating company.

The Present Extent of Integration of Public Utilities on the Pacific Coast[2]

The accompanying map shows the territory served with electricity by each of the major ownership groups on the Pacific Coast. The most significant fact shown by this map is that nine ownership groups control almost all the important territory, and probably supply over 90% of the total electric light and power service in California, Oregon, Washington, and Idaho.

Of these nine groups three are actively controlled by management companies,[3] Electric Bond and Share Company, H. M. Byllesby and Company, and Stone and Webster, Inc. Three of the remaining large groups are controlled by less active holding companies—namely, North American Company, Public Utilities Holding Corporation, and Nevada-California Electric Corporation of Denver. The remaining three large groups, Pacific Gas and Electric Company, Southern California Edison Company, and Los Angeles Gas and Electric Company,[4] are locally controlled.

Six other smaller ownership groups are indicated on the map, and of these none is locally controlled, unless the ownership of Coast Counties Gas and Electric Company by Standard Oil Company of California can be called local control. Four of the smaller groups are controlled by holding companies which appear to exercise management functions. These are Public Utilities Consolidated Corporation, which is controlled by W. B. Foshay Company of Minneapolis; People's Power and Light Corporation, which is associated with G. L. Ohrstrom and Company of New York; Federal Light and Traction Company, and North American Gas and Electric Company. Of the other two groups, one is owned by the Wisconsin Securities Company, and the other by Standard Oil Company of California.[5]

The extent to which integration in the field of electricity supply has taken place is indicated by the fact that, except for municipal plants, only nine towns over 1,000 population in the four states studied here are not served by one of these 14 ownership groups. Of these towns over 1,000 which are still served by small independent local systems, four are in California, three in Washington, and two in Idaho. A considerable num-

[2] In this section, the portrayal of the extent of integration covers chiefly the electric utilities because consolidation activity has been most striking in this field recently, although there has been considerable activity in the telephone and motor carrier fields also.

[3] Management company groups here are considered as including only those groups owned by holding companies which either directly or through associated companies render organized financial, managerial, construction or other services to their subsidiaries.

[4] The Los Angeles Gas and Electric Company is controlled by Pacific Lighting Company, a San Francisco company.

[5] There have been some statements that the Coast Counties Gas and Electric Company contemplates an extensive use of natural gas, which accounts for the interest of the Standard Oil Company in this property.

ber of such small companies still operate in towns of less than 1,000.

Electric Utilities. The most important development in the integration of electric utilities on the Pacific coast in the past two years was the purchase of the Montana Power Company and the Washington Water Power Company in the spring of 1928 by the American Power and Light Company, holding company of Electric Bond and Share. This transaction gives the Electric Bond and Share group dominance over the electric utility field in Montana, Idaho, Utah, eastern Washington, and Oregon.

Another important development of the last two years was the purchase by the Pacific Gas and Electric Company of H. M. Byllesby and Company utilities located in its territory. The properties of these companies formerly owned by the Byllesby group were leased by the purchasing company in 1927, and in 1928 these companies were purchased, the Pacific Gas and Electric Company agreeing not to encroach on the Byllesby territory in northern California. The Pacific Gas and Electric Company system almost surrounded the properties of one of these companies, and it supplied the major portion of the requirements of the other. Possibly this transaction may foreshadow further merger of properties in the California field and elsewhere on the Pacific Coast to secure better consolidated systems.

A third interesting phase of recent developments has been the purchase of small, widely separated utilities, which seemingly belong economically in the larger systems, by two more recent holding company groups, the W. B. Foshay group of Minneapolis (Public Utilities Consolidated Corporation),[6] and the G. L. Ohrstrom interests of New York (People's Power and Light Corporation). Practically all properties on the Pacific Coast now owned by these two groups have been recently acquired. They are scattered widely in eastern Montana, Idaho, Washington, Oregon, and northern California, as may be observed on the map.

The acquisition in 1928 by the A. E. Fitkin interests of the Coast Counties Gas and Electric Company is another example of an outsider sneaking in to purchase properties from under the nose of the logical contender. The territory of this company is completely surrounded by the Pacific Gas and Electric Company, which supplies a large part of the electricity sold by it. The Coast Counties Company has since been acquired by the Standard Oil Company of California.

Gas Utilities. Integration in the gas industry has not been carried to the same extent as in the electric industry, although considerable consolidation has taken place, particularly in the past two years. This is especially true of the natural gas properties in southern and south-central California, a great many of which are controlled by the Pacific Lighting Company, which is owned by San Francisco interests. In many cases in the rest of the territory the company supplying electricity also supplies the gas service.

Telephone Utilities. The telephone service in this territory is very largely supplied by the American Telephone and Telegraph Company subsidiary, the Pacific Telephone and Telegraph Company. As in most instances over the United States the Bell system subsidiary probably supplies more than 95% of the service and occupies all the important territory.

Water Utilities. Considerable managerial integration has also taken place

[6] Public Utilities Consolidated Corporation recently went into receivership.

recently in water utilities, the Federal Water Service Company, with which G. L. Ohrstrom and Company is associated, having perhaps the largest of such consolidations. This Company owns a considerable number of water properties in California, Oregon, and Washington.

Powers of State Commissions to Regulate Integration

With the exception of the California law, the public utility laws of the Pacific Coast states only give the commissions power to prescribe just and reasonable rates and to see that service is adequate and rules reasonable. The commissions all have supervision over railroads and the usual public utilities, including electric, gas, water, telephone and telegraph companies, street railways, motor carriers, ferries, and warehouses. They also have the power to require utilities to obtain certificates of convenience and necessity before doing business in territory already occupied by another company, except that in Washington this provision applies only to motor carriers. These general provisions, with the necessary detailed provisions for their execution, approximately cover the extent of commission powers in Oregon, Washington, and Idaho.

The California Commission, however, has certain additional powers. Most important of these is the power to regulate security issues. The public utility law provides that securities of operating utilities maturing after 12 months may not be issued except for certain stated purposes, chiefly the provision of new or improved facilities; and may not be issued without the consent of the commission.[7] This provision also applies to assumption of obligations as guarantor.[8]

An additional provision of the California act which is particularly important from the point of view of regulation of integration prevents a public utility from selling or merging any part of its plant used for public utility services without first securing commission approval.[9] It is also provided that one public utility cannot acquire the capital stock of another in California without permission from the Commission,[10] but the law does not give the Commission control over the purchase of stock of utilities by others than public utilities. The Commission thus has no direct control over the prices paid by holding companies for utilities purchased.[11]

This summarizes in a general way the chief provisions in the public utility laws of the four Pacific Coast states studied. Of all these states the only one where any direct control over integration is given to the regulatory commission is California. The control possessed in California applies almost entirely to integration carried on by a utility company, whether through merger, lease, or stock ownership. Control over purchase of one utility by another, and subsequently control over security issues, gives this Commission considerable power to regulate such integration and its consequences. No direct power to regulate integration by holding companies is given in any of these laws.

Commission Regulation of Purchase Prices

The commission cases concerning integration have been divided into two groups: (1) cases relating to purchase prices paid for public utility properties and the effect of these on rate-bases and capitalization; and (2) cases concerning

[7] Public Utilities Act of California, sec. 52.
[8] *Ibid.*, sec. 52¾.
[9] *Ibid.*, sec. 51 (a).
[10] *Ibid.*, sec. 51 (b).
[11] *Ibid.*, sec. 26.

intercorporate relations between utilities, and between utilities and holding companies.

The policy of the California Commission from the very first in approving purchase prices for public utilities has been to insist specifically when allowing the purchase, that the price paid was not to be binding for rate-making or capitalization purposes.[12] Other Pacific Coast commissions have also refused in rate cases to recognize purchase prices as signifying value for rate-making purposes.[13] The stipulation that purchase prices shall have no effect on the rate-base is, of course, a common one with commissions dealing with this problem, and a well settled point at law.

In passing upon the effect which purchase prices paid are to have on the capitalization of the purchasing utility, the California Commission has with a few exceptions steadfastly refused to permit securities to be issued in excess of actual or estimated historical cost less the amount of depreciation accrued, presumably the amount which should have been collected from customers in depreciation charges. In numerous cases the Commission has reduced the amount of securities sought to be issued to pay for a purchased utility to conform to this standard.[14] In earlier cases before the price upheaval of the war the Commission used depreciated reproduction cost as a basis.[15] At this time the two standards were very close together. The fact that the purchasing utility has agreed to pay a larger sum for the properties to be acquired than the amount permitted to be raised through security issues, has not been considered to be a good reason for allowing more securities. In a recent case involving a newly organized public utility, which had contracted to purchase a group of water companies,[16] the commission said it was aware that the purchasing company had agreed to pay more for these properties than the amount allowed, but that the excess would have to be paid by someone other than the public utility company. Ostensibly the only ones who would do so would be the owners of the purchasing company, the owner in this case being a holding company.

The few exceptions which the California Commission has made to the rule stated in the preceding paragraph have almost all been cases where the original excessive financing was done before Commission supervision began.[17] The refinancing thus put the companies in no worse financial situation than previously.

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[12] *Re Tulare County Power Co.*, P.U.R. 1915 E 817; *Standard Consolidated Mining Co.*, P. U. R. 1915 B 23; *Re San Diego Consolidated Gas & Electric Co.*, P. U. R. 1916 E 269; *Re Corona Gas & Electric Co.*, P. U. R. 1919 A 866; *Re Northern California Power Co.*, P. U. R. 1920 A 838; *Re Tuolumne County Power Co.*, P. U. R. 1928 C 31; *Re Pacific Telephone & Telegraph Co.*, P. U. R. 1928 F 80.

[13] *Re Consumers Power Co.* (Idaho) P.U.R. 1924 E 581; *Re Capital Water Co.* (Idaho) P.U.R. 1924 D 292.

[14] *Re Los Angeles Gas & Electric Co.*, 2 Cal. R. C. R. 589; *Re Red Star Stage Line*, 14 Cal. R. C. R. 126; *Re Santa Barbara Gas & Electric Co.*, 16 Cal. R. C. R. 799; *Re San Diego Consolidated Gas & Electric Co.*, 21 Cal. R. C. R. 858; *Re Motor Coach Co.*, 22 Cal. R. C. R. 984; *Re Peoples California Hydro-Electric Co.*, 28 Cal. R. C. R. 585, 625; *Re El Pizmo Water Co.*, 29 Cal. R. C. R. 261; *Re Sweetwater Water Co.*, 29 Cal. R. C. R. 808; *Re California Water Service Co.*, 30 Cal. R. C. R. 876 and 31 Cal. R. C. R. 327; *Re Peerless Stages*, 30 Cal. R. C. R. 346; *Re Southern California Edison Co.*, 31 Cal. R. C. R. 262; *Re Public Utilities California Co.*, 31 Cal. R. C. R. 28 and 769; *Re South Coast Gas Co.*, P.U.R. 1929 E 476.

[15] *Re Cloverdale Light & Power Co.*, 2 Cal. R. C. R. 1002; *Re South Los Angeles Water Co.*, 6 Cal. R. C. R. 226; *Re Fay Water Co.*, 6 Cal. R. C. R. 1103; *Re San Diego Consolidated Gas & Electric Co.*, 12 Cal. R. C. R. 485; *Re W. P. McIntosh*, 15 Cal. R. C. R. 5.

[16] *Re California Water Service Co.*, 30 Cal. R. C. R. 876 and 31 Cal. R. C. R. 327 (P.U.R. 1928 D 208).

[17] *Re Riverside, Rialto & Pacific R. Co.*, 6 Cal. R. C. R. 106; *Re Citrus Belt Gas Co.*, 6 Cal. R. C. R. 776; *Re United Light & Power Co.*, P. U. R. 1915 C 622; *Re Great Western Power Co.*, P. U. R. 1916 B 583.

In cases where the purchasing utility did not intend to issue securities to pay for the properties acquired, but paid for them out of surplus earnings, the California Commission has adopted the policy of permitting the utility to add to its capital account only an amount based on the same standard used in allowing securities, actual or estimated historical cost depreciated.[18] The Commission stipulated in these cases that the balance of the amount paid for the purchased properties must be charged to surplus. These "excess" payments are not permitted of course to be included in operating charges.

The California Commission has also made it a practice to consider whether the purchasing utility will be financially able to carry on the undertaking, and in some cases has refused security issues in purchase cases for this reason.[19]

In all cases considered so far the California Commission has not attempted to regulate purchase prices directly, but has confined its activities to regulating the amounts used as a basis for securities and charged to fixed capital accounts. This restriction has apparently been the policy of the Commission, for in a rather extensive survey of cases dealing with purchase of utilities the writer has found only one where direct regulation of the purchase price was undertaken.[20] In this case the purchasing utility proposed to buy water properties from one of its stockholders for the sum of $10,000. In view of the valuation and earnings of the properties, the Commission permitted it to pay $9,000. In another recent case[21] the Commission dismissed a purchase case subject to a supplemental order because of certain "inequalities." While not definitely so stated, it appeared probable that the objectionable "inequalities" consisted of the proposal to pay $5,000 for a one-half interest in a bus line when one-half the physical equipment was stated to be worth only $2,000. The parties were directed to submit a revised agreement. While not a definite revision of the proposed purchase, this case borders on it.

From this review of commission practice on the Pacific Coast with respect to controlling purchase prices in integration of public utilities, it is seen that all commissions control the effect of such prices on the rate-base. In California, when the purchasing company is itself a public utility, the Commission has in addition exercised effective control over the influence of purchase prices on capitalization and fixed capital accounts. It has also exercised a slight direct control over such prices. As the commissions in the other states studied have no jurisdiction over security issues or purchases, they have not regulated this aspect of consolidation. None of the commissions has the direct power to regulate purchase prices paid by holding companies, nor, of course, their capitalization.

Regulation of Intercorporate Relations.

The simplest case of regulation of intercorporate relations is where the affiliated companies are both local utilities, or where the selling company is a utility. If both companies are utilities,

[18] *Re Northern California Power Co.*, 17 Cal. R. C. R. 279 at 289; *Re Pacific Electric Ry.*, 24 Cal. R. C. R. 307; *Re Coast Counties Gas & Electric Co.*, 29 Cal. R. C. R. 459; *Re Southern California Edison Co.*, 30 Cal. R. C. R. 699; *Re Great Western Power Co.*, 31 Cal. R. C. R. 718; *Re Pacific Gas & Electric Co.*, 31 Cal. R. C. R. 189; *Re Southern California Edison Co.*, 31 Cal. R. C. R. 615.

[19] *Re Fuller*, 17 Cal. R. C. R. 655; *Re Sposito*, 21 Cal. R. C. R. 702; *Re Clark & Ramsey*, 21 Cal. R. C. R. 505; *Re Riley*, 22 Cal. R. C. R. 500; *Re John*, P.U.R. 1928 B 828.

[20] *Re Sonoma Water & Irrigation Co.*, 29 Cal. R. C. R. 318.

[21] *Re Wilkins, Larsen & Alexander*, 31 Cal. R. C. R. 481, at 497.

their rates are regulated and frequently the commission has control over the prices which may be charged by each company for services supplied to the other.[22] If only the selling company is a utility, the commission still has adequate control. Through access to information regarding the reasonableness of the rate the commission possesses power to prevent bleeding of the selling utility company by too low a charge for its services.

The difficulties arise in cases where an associated non-utility company supplies some thing or service to a utility company. The commission has neither the power to disallow the charge in the absence of proof of its fairness, nor jurisdiction to examine the books of the selling company to determine its reasonableness. The United States Supreme Court has ruled[23] in effect that the burden of proving the unreasonableness of the charge is on the regulating commissions, rather than requiring the companies to prove its reasonableness. In this situation some other criterion than cost of the service must be used.

Cases involving charges to utilities by associated non-utility companies are ordinarily of two classes: (1) where a construction company builds a plant and sells it to the utility or where construction supervision fees are charged by a management company; and (2) where a management or holding company supplies services of other kinds to the utility and charges management or other fees. This distinction between these different kinds of charges is made because commissions deal with them under somewhat different circumstances. Construction fees are capitalized, and commissions pass on them when fixing rate-bases or allowing security issues. Management fees are charged to operating expenses, and commissions must determine whether they are legitimate charges to be borne by consumers.

Cases involving construction companies and construction fees, while complex enough, are easier of solution than the other type. Since competitive market prices for such products and services exist, it is usually possible to determine whether prices charged the utility have been excessive. The California Commission at its very start indicated that purchases of property from construction companies would be considered suspicious and proof would be required in rate and security cases of the legitimacy of the charges made.[24]

In a recent case[25] involving such a situation, a motor-bus company asked for authority to issue securities to pay for equipment purchased from its parent company at profits ranging as high as 25%. The Commission allowed the issue with the provision that the proceeds could be used only as the Commission authorized, after submitting a statement of the cost of the equipment in detail with a justification thereof. When the company later applied for permission to use the proceeds of the issue to pay the parent company, the Commission reduced the amount requested to exclude any allowance for manufacturer's profit or return on the investment of the parent company used in constructing the equipment.[26] The utility company wanted

[22] For regulation of such rates in California see *Re United Light & Power Co.*, P.U.R. 1915 C 622; *Re Fontana Power Co.*, P.U.R. 1917 A 633; *Re Sierra & San Francisco Power Co.*, P.U.R. 1919 B 667; *Re Southern Sierras Power Co.*, P.U.R. 1919 B 942; *Re Mt. Whitney Power & Electric Co.*, P.U.R. 1920 D 931.

[23] *Houston v. Southwestern Bell Telephone Co.*, P. U. R. 1922 D 708; *Missouri ex rel. Southwestern Bell Telephone Co. v. Public Service Commission*, 262 U. S. 276 (1923).

[24] *Re Southern Sierras Power Co.*, 1 Cal. R. C. R. 556, and 6 Cal. R. C. R. 217.

[25] *Re Pickwick Stages System*, 30 Cal. R. C. R. 761 (P.U.R. 1928).

[26] *Re Pickwick Stages System*, 31 Cal. R. C. R. 49 (P.U.R. 1928 D 310) and 31 Cal. R. C. R. 746 (P.U.R. 1928 D 604).

to pay the construction company $66,500, and the Commission allowed $59,000, which it stated included adequate allowance for all costs including overhead, except return on the investment. Presumably the Commission would include an allowance for the investment of the construction company when fixing rates for the utility.

If the Commission stands by this ruling, it would seem that California utilities will not be permitted to charge to fixed capital or issue securities against construction fees charged by management companies, except in so far as these represent actual expenses borne by the management companies.

Cases involving management fees are more difficult of determination than those concerning construction charges because of the uncertain nature of the services rendered, and the lack of an independent supply of such services. The cost of many services supplied by management companies is joint to all utilities served, and to determine the cost to any one utility, it would be necessary to allocate portions of this cost arbitrarily. The difficulties of determining the cost of the service would thus be great enough, even if the books of the management companies were available for commission inspection. These rarely, if ever, are and commissions can do nothing more than make estimates of the reasonableness of the charges on the basis of probable cost or the value of the service.

Most cases involving such charges are concerned with the well-known American Telephone and Telegraph Company charge which was formerly 4½% of gross revenue. In a case arising in 1913[27], the California Commission refused to allow the 4½% charge and substituted one of 2½%, and stated that such contracts were always open to suspicion because they were not between parties equally competent to contract. The Commission held that, because of the relationship between the companies, proof must be given not only that the Pacific Telephone and Telegraph Company secures as much for the payment as it could secure elsewhere, but that the parent company was getting no more out of the contract than the reasonable cost of the services performed thereunder. The fact that payments under the contract were actual expenditures was held to be of no significance, for actual expenditures, if improvident, may be disallowed. The Commission found that the only service rendered to this exchange under the contract was the furnishing of the instruments.

In cases arising since then the percentage method of computing the charge was disallowed by the California Commission, this method being condemned in principle. This Commission in two cases allowed a lump sum charge instead of the percentage, reducing the total allowance.[28]

The Washington Commission in early cases approved the percentage payment to the American Telephone and Telegraph Company, stating that the arrangement was beneficial to the local telephone company, and that the services received would cost more if furnished by the local company itself.[29] The method of determining the amount of the payment, a percentage of gross revenue, was condemned, and the per station basis recommended. In a later case, which was reversed by the courts, the Washington Commission reduced

[27] *San Jose v. Pacific Telephone & Telegraph Co.*, 3 Cal. R. C. R. 720, and 4 Cal. R. C. R. 150.

[28] *Re Southern California Telephone Co.*, P. U. R. 1922 C 97; and P. U. R. 1925 C 627.

[29] *Re Pacific Telephone & Telegraph Co.*, P. U. R. 1919 F 131; *Seattle v. Pacific Telephone & Telegraph Co.*, P. U. R. 1923 D 113, at 139.

the amount allowed under the contract, allowing instead an annual charge of 90 cents per station.[30] The Federal court reversed this case on the usual grounds that the contract is good unless fraud is proven, and that the Commission cannot assume the powers of management of the utility.

The Oregon Commission in one case[31] disallowed the payment to the American Telephone and Telegraph Company under the then 4½% contract, allowing in its place 55 cents per station in addition to maintenance, depreciation, and return on the equipment furnished and interest on the working capital provided. The Commission stated that the charge should be based on cost rather than value of the services rendered.

In addition to the cases concerned with the fee charged its subsidiaries by the American Telephone and Telegraph Company, there are in the states studied only two other cases involving holding company fees, so far as the writer has been able to discover. One of these is a California case and the other an Idaho case. In the California case,[32] where a Byllesby-managed company was concerned, the principle of charging a fee as a percentage (2½%) of gross revenue was disapproved. The total amount of the fee allowed was reduced because the Commission thought that there was a duplication of charges. The utility was paying both the management fee and the cost of a high-priced manager and staff, the total charge being considerably higher than similar expenses in comparable utilities. The lump sum allowed was presumably the management fee less the manager's salary, for the Commission said that when this amount was deducted, the utility's general expenses were approximately the same as in other similar companies.

In the Idaho case[33] the management fee charged by the supervising company, which was the Electric Bond and Share Company, amounted to about 2% of gross revenue and in addition other payments were made for special services and travelling expenses. The court in this case allowed the charge, although it expressed doubt as to the fairness of such a contract. It said that, where both parties to a contract are under the same control, the rule that a court will not substitute its judgment for that of the managers is not applicable. Since this payment was for economical operation and financing, the company could not ask for further credit in the rate-base or in the rate of return for economies achieved.

Powers Necessary for Effective Control of Public Utility Integration.

First, with regard to the problems connected with regulation of purchase prices, it seems that all states studied have the power to prevent such prices from affecting the rate-base of the utilities involved. This does not, of course, necessarily mean that they can prevent purchase prices from affecting rates charged. Second, in California, the only state studied with a public utilities law giving the Commission power to regulate security issues or purchase prices paid by utilities, the Commission has effectively prevented purchase prices from adversely affecting either the capitalization or the fixed capital accounts of utility companies involved. This regulation operates only when the company making the purchase is a public utility

[30] *Pacific Telephone & Telegraph Co. v. Whitcomb*, P. U. R. 1926 D 815, at 826.

[31] *Re Pacific Telephone & Telegraph Co.*, P. U. R. 1919 D 345, at 365.

[32] *Re Western States Gas & Electric Co.*, P. U. R. 1924 D 681.

[33] *Idaho Power Co. v. Thompson*, P. U. R. 1926 C 388.

itself. To possess this degree of regulation, the other states besides California have only to amend their laws to give the regulatory bodies powers similar to those possessed by the California Commission.

The remaining aspect of purchase prices which seems to affect the public interest in public utilities is that of prices paid by holding companies and the effect of these prices upon their capitalization. Regulation of these matters cannot be assumed to be desirable, as has been done regarding the regulation of other aspects of purchase prices.

Opponents of regulation of holding companies base their opposition largely on the contention that such regulation is unnecessary, for through commission control of the operating companies and the fact that rates are based on fair value, not capitalization, commissions now have the power to prevent holding company capitalization and practices from adversely affecting consumers. Public utility commissions have no legal necessity to consider either operating or holding company capitalization in fixing rates, but should base these solely on the fair value of the physical properties used. A rate is not confiscatory if it provides a fair return on this value, even if it fails to provide sufficient income to pay interest on holding company bonds.

In addition, overcapitalization is said to be unlikely, for investment bankers have close supervision over the financing of holding companies and will not permit such practices. Blue sky laws also tend to prevent this. Besides these restraints, it is said that the self-interest of the holding companies will cause them to avoid unsafe financing.

The competency of commission personnel to undertake the task of regulating holding companies is also questioned. Certainly the regulation of a large holding company system with properties scattered all over the country would be very complicated. There can be no doubt that the cost of the regulatory system, both in expenses of commissions and of the companies regulated, would be greatly increased.

On the other hand, those who favor this extension of regulation, state that however true the theory is that holding company capitalization does not affect rates charged consumers in practice it does not work out that way. Taking the extreme case where the holding company goes into receivership as the result of overcapitalization, as seems to be the case in the recent receivership of the Public Utilities Consolidated Corporation, a W. B. Foshay holding company, the harm done the subsidiaries in the uncertainties of reorganization and the disorganization of their controlling agency is obviously very great. Furthermore, if reorganizations of holding companies occur even occasionally, the market for public utility securities will be seriously damaged.

Before this final step takes place, and perhaps even averting it, the claim is made that the operating utility is likely to be bled to pay interest and dividend charges of the holding company. There are numerous ways in which this can be done without attracting attention, particularly as regulatory bodies often do not have time, funds, nor inclination to scrutinize closely the utilities' reports. Even if shady devices are not used, pressure on the management for more profits is likely to result in skimping of maintenance and depreciation charges and deferring of renewals and extensions with resultant deterioration of service. Certainly under such conditions possible decreases in rates will be deferred as long as possible and increases will be asked whenever a reasonable excuse can be found for so doing.

In addition to these extra-regulatory methods, by which holding company fixed charges tend to affect the operating companies' rates and service, it is contended that holding company capitalization may possibly affect directly the rates allowed by regulatory bodies. So long as commissions are composed of human beings, they are likely to take the interests of innocent investors into account when regulating rates, even though they are under no legal obligation to do so.

The reader may decide for himself to which of these points of view he will adhere. If the first is adopted, then the present regulatory system, when extended to the fullest degree, is adequate so far as concerns regulation of purchase prices. If it is thought that regulation should be extended to cover purchase prices paid by holding companies and their capitalization, numerous problems of how to do so at once arise.

The difficulties connected with regulation of holding company securities are of two types, legal and practical. Holding companies have not been brought under the public utility status, and it is uncertain if they could be constitutionally so considered. Control over their security issues could not be undertaken without this having been done. In addition, holding companies almost always extend over a number of states. A state commission probably could not legally regulate the capitalization of a foreign corporation. Such regulation would have to be done by a federal body or one endowed with federal powers, or by a compact of several state commissions. Besides these legal obstacles, the practical difficulties of deciding on a value for capitalization purposes of properties scattered all over the country would be very great, particularly if done by a body not familiar with local conditions.

In lieu of trying to control the capitalization of holding companies directly, several states[34] have passed laws prohibiting any corporation from holding more than a small percentage of the stock of a public utility without consent of the state public service commission. If provisions of this type are upheld by the courts, the commission is thus given power to prevent acquisitions of stock of utility companies by holding companies if it thinks that the price to be paid is excessive and is likely to result in overcapitalization of the holding company. However, such a finding recently by the Maryland Commission was not upheld by the state Circuit Court. The Commission in this case refused permission for a transfer of stock at what it thought was an excessive price because no benefit to the public would result.[35] The Circuit Court then overruled the decision on the grounds that the Commission must find that a positive detriment will result, not merely that no benefit will arise.[36] When the Commission obligingly revised its decision to find a detriment from the transaction, the Court held that rates and service were under the control of the Commission and the payment of an excessive price by the holding company could have no effect on them; hence no detriment resulted to the public from the transaction.[37] The Commission appealed this case to the Maryland Court of Appeals, but the would-be purchaser has since withdrawn its ap-

[34] New York, Maryland, Missouri, Illinois, New Jersey, Indiana, Massachusetts, District of Columbia. See David E. Lilienthal, "Regulation of Public Utility Holding Companies," 29 *Columbia Law Review* 404, at 422 (April, 1929) for a discussion of this matter and a very complete and scholarly discussion of the entire subject.

[35] *Re Electric Public Utilities Co.*, P. U. R. 1927 E 609.

[36] *Electric Public Utilities Co. v. West*, 140 Atl. 841 (Maryland, 1928).

[37] *Electric Public Utilities Co. v. P. S. C.*, P. U. R. 1928 E 854.

plication and the case has been dismissed.[38] Evidently with the intent of avoiding these difficulties, the Maryland Commission recently secured the passage of a law placing the burden of proof on the applicant to show that the transfer is consistent with or required by the public interest.[39]

The chances that laws of the Maryland type will be upheld by the courts seem to be far better than that the courts will permit direct regulation of holding companies. Besides this practical advantage, such laws probably would accomplish many of the objects of direct control. The vigilance of investment bankers probably can be better trusted to prevent over-capitalization when this involves issuing securities for amounts greatly in excess of purchase prices contracted for, than it can be depended upon to prevent unsafe financing when this is necessary to meet purchase obligations. In any event, there would not be the pressure to capitalize holding companies excessively that exists when inflated purchase prices are paid. If investment bankers can be trusted to insist that the amount of holding company securitise issued be based on purchase prices paid for their properties, then commission control of purchase prices could prevent a considerable measure of overcapitalization. Evasion by secret agreement might be a vitiating factor in the operation of such laws, however. Certainly this type of regulation would be easier to administer than direct control of holding ompanies.

Turning now to the matter of regulating fees paid to management companies, we also encounter many legal and practical difficulties, although the problem on the face of it seems comparatively simple. Most commissions now have control over the expenses of operating utilities, including fees of this nature, and improvident ones may be disallowed. The difficulty with controlling management fees is that the commissions have no basis on which to determine whether or not they are excessive. Unless fraud or collusion can be shown, courts usually regard contracts for such fees as bona fide[40] despite the practical identity of the parties to them, and put it up to the commissions to prove their unreasonableness. This position is taken because of the respect held by courts for the corporate fiction, i. e., that separate corporations, even when controlled by the same persons, are ordinarily independent. Contracts between holding companies and subsidiaries are treated as if the managers of the local utility had carefully weighed the advantages of these contracts, and wilfully entered into them—an obvious suggestion.

The courts lay down the rule that charges made under management contracts are not excessive if they are less than the operating company would be compelled to pay elsewhere for the same services, or than it would cost the operating company to supply the service itself. On the surface these tests appear very reasonable. With respect to the first, however, the competitive market for the type of services rendered under management contracts is practically non-existent, and there is seldom any way to determine what the services rendered would cost under competitive conditions. Regarding the second test, in a great many instances it would be entirely impracticable from the point of view of cost for a utility to provide for itself the services received. To apply this test is to

[38] Letter of the Secretary of the Maryland Public Service Commission to the writer. The Commission has authorized another company to acquire the properties concerned at a smaller price than that previously proposed.

[39] Maryland, Laws 1929, ch. 520.

[40] See n. 19 *supra*.

say that the owners of utilities should be allowed to retain for themselves all the advantages of improved methods of doing business; for, the management company system in public utilities is admitted by all but its most rabid opponents to be an improved method of doing business.

In a recent case before the United States Supreme Court[41] a decision was rendered without respecting the terms of a contract between parent and subsidiary companies for the division of profits from gasoline extraction. Although this case did not involve a management contract and the procedure was followed with the consent of the companies, it gives support to the right of commissions to require proof of the reasonableness of management contracts.

Unless the doctrine of this case is extended to mean that contracts between affiliated companies are on their face suspicious, the burden of proving such contracts unreasonable before disallowing charges remains on the commissions. Since in many cases the tests allowed by the courts are unworkable, as was suggested previously, and commissions have no power to compel access to the management companies' books to secure other evidence, the only alternative seems to be reliance on the benevolence of these companies. The Wisconsin Commission has tried to meet the situation by saying that it will allow only that proportion of management fees which the holding company proves by cost evidence.[42] The Michigan Commission apparently reserves the right to recover any excessive charges when the courts have changed their attitude.[43]

The possibility of giving commissions accessibility to management company books seems to be remote. To require this, such companies would have to be placed under the public utility status, which would be a very difficult step for the courts to take. In addition to the necessity of classifying holding companies as public utilities, to make it possible for the state commissions to examine holding company books, they would have to be declared to be doing business in every state where they control operating utilities which are charged fees. State commissions could not force foreign corporations to produce their books, but this might be made a prerequisite to doing business in the state. Management companies almost always send representatives to the operating properties periodically. To the layman this seems very clearly to be doing business where that utility is located.

Even after the commissions have access to holding company records, they will still have many practical problems to surmount. The segregation of the costs of providing the particular services rendered to each subsidiary will be very difficult. Many of the services are provided jointly to all, and very delicate problems of cost allocation will arise. The best that a commission could hope to do, even with free access to all books, would be to approximate cost of service.

The best solution of the problem seems to be to place the burden of proof of the reasonableness of payments made under management contracts on the utilities. Probably the adoption of a more practical point of view by judges is the only legal step necessary for such a requirement. Great difficulties would still remain in determining the cost of the services, but at least this would be put up to the management companies, who presumably know more about them than commissions are likely to.

[41] *United Fuel Gas Co. v. Railroad Commission of Kentucky*, 49 Sup. Ct. 150 (1929).

[42] *Re Wisconsin Telephone Co.*, P. U. R. 1925 D 661, at 674; and P. U. R. 1927 A 581, at 591.

[43] *Re Michigan Bell Telephone Co.*, P. U. R. 1926 C 607, at 612.

THE POST-OWNERSHIP STEPS ON THE "AGRICULTURAL LADDER" IN A LOW TENANCY REGION

By CARL F. WEHRWEIN

IN a previous article[1] the writer discussed the pre-ownership steps on the "agricultural ladder" in the Town of Newton, Manitowoc County, Wisconsin. As therein explained, this is an area with a low percentage of tenancy. Manitowoc County had only 1.92% of farm tenancy in 1880 and this had increased to but 4.14% by 1925. In the present article the purpose will be (1) to examine the pre-ownership stages a little further, noting especially the combination of steps which farmers of Newton made to become farm owners, and, chiefly, (2) to discuss what might be called the "post-ownership steps"—the stage of encumbered ownership.

The previous article dealt with 201 farmers of the total 267 actually resident in the Township, of whom only two were tenants. These 201 farmers were placed into two major groups; the first, numbering 97, included those who never left the home farm but who went directly to ownership without taking any of the wage-earning steps; and the second, 104 in number, were those who engaged in one or more types of wage-earning occupations. Tenancy as a distinct step was used by both groups, seven of the first group and eleven of the second group having been tenants at some time or still are.

Table I shows the various steps used by the farmers of Newton to obtain ownership of a farm. The symbols are the same as those used by previous writers on farm tenure. However, it was necessary to split the usual L (laborer away from the farm) into two groups: RL, "rural laborer," (i.e., non-farming occupations in the country); and UL, "urban laborer," or city occupations.[2]

The farmers were separated into two groups, those reared on the farm including three who were born in the city but came to the farm as children, and those who were born and reared in cities and who chose farming as an occupation in later life. The combinations of steps are placed in the table in order of their importance.

As the table shows, 44.7% (Combination 1) of the 201 farmers included in the study went directly from apprenticeship or working on the home farm without wages to ownership. Inheritance played a considerable role for these men. It will be noted that only four men received wages while working on the home farm (Combinations 12 and 14). The two in Combination 12 never left the home farm, making a total of 92, or almost 46%, who remained on the home farm and went directly to proprietorship without any intervening steps.

It is interesting that the second most important combination is not the hired-man group but the rural non-agricultural laborers. Over 14% used these

[1] Carl F. Wehrwein, "The Pre-Ownership Steps on the 'Agricultural Ladder' in a Low Tenancy Region," 4 *Journal of Land & Public Utility Economics* 416–425 (November, 1928).

[2] See, for instance, William Ten Haken, "Land Tenure in Walnut Grove Township, Knox County, Illinois," 4 *Journal of Land & Public Utility Economics* 13–24 188–198 (February and May, 1928); and Hibbard and Peterson, "How Wisconsin Farmers Become Owners," *Wisconsin Experiment Station Bulletin*, No. 402, p. 5.

occupations to bridge the gap between F and ownership. The hired-man stage exclusively was used by 10.4% of these farmers, while 6.4% pursued urban occupations before becoming farmers. Further examination shows, however, that 7 of the 13 using Combination 4 were city-born farmers who, it is significant, undertook ownership without any previous farm experience. Only two of the nine city-reared men served farm apprenticeship either as hired man or tenant (See Combinations 3 and 10). Seven of the 201 men used the tenant rung as the only step between the home and proprietorship (Combination 6), this group being of the same basic type as the first one, since they rented the home farm which they later bought.

Of those who used more than one step, Combination 5 is by far the most important. Twelve men were rural, non-agricultural laborers and hired men before becoming farm owners. The table does not, however, give the order in which these men pursued their callings in this combination. Some were rural laborers before becoming hired men, others reversed the order, and still others shifted from one to the other several times as opportunities for employment presented themselves. This also applies to the other combinations in the table. Combinations 7 and 8 are also important. In Number 7, six were hired men as as well as urban workers and in the next combination, urban trades and rural, non-agricultural labor were the rungs of the ladder. Only six men used three or four intermediate steps between apprenticeship at home and proprietorship (Combinations 11, 13 and 16).

The figures in Table I show the different types of occupations and the importance of various combinations of occupations as used by these 201 Newton farmers in their progress toward farm ownership. The tabulation does not show, however, the relative importance of the separate steps, although this information may be deduced from the data given in Table I. Thus, while 30 used rural labor as the one step in the second combination, the same step appears in seven other combinations, making a total of 56 farmers who used the RL rung. Forty-five men had been hired men at some time in their careers and 33 spent some time in urban occupations. Tenancy appears in six combinations involving 18 men.

The significance of these data concerning the climb to ownership lies in the fact that in the majority of instances acquisition of a farm is secured only after a longer or shorter period during which the necessary funds for purchase are being accumulated. But acquisition of title to the first farm does not necessarily mean

TABLE I. COMBINATIONS OF PRE-OWNERSHIP STEPS ON THE AGRICULTURAL LADDER USED BY 201 FARMERS IN NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN.*

Combination†	Number of Farmers		
	Total	Reared on Farms‡	Reared in City
All Combinations	201	192	9
1. F–O	90	90	0
2. F–RL–O	30	30	0
3. F–H–O	21	20	1
4. F–UL–O	13	6	7
5. F–RL–H–O	12	12	0
6. F–T–O	7	7	0
7. F–H–UL–O	6	6	0
8. F–RL–UL–O	5	5	0
9. F–H–T–O	3	3	0
10. F–UL–T–O	3	2	1
11. F–UL–RL–T–O	3	3	0
12. F–W–O	2	2	0
13. F–H–UL–RL–O	2	2	0
14. F–W–RL–O	2	2	0
15. F–RL–T–O	1	1	0
16. F–H–UL–RL–T–O	1	1	0

* Original data.
† Key: F—at home without wages; RL—rural, non-agricultural work; H—hired man or farm laborer (not on home farm); UL—urban employments; T—tenant; W—work on home farm with wages; O—owner.
‡ Includes three men born in the city who came to the farm as children with their parents.

that the farmer has reached the top of the tenure ladder. As a rule farms are mortgaged for a large part of the purchase price, because the pre-ownership rungs have rarely afforded a sufficient accumulation of wealth to enable the young man to buy a farm for cash. Even if the farm is inherited the cases are few where land is acquired clear of all encumbrances. In some cases the parents hold a mortgage on the land and in others the various members of the family have claims against the one who inherits the homestead. These claims are at times incorporated into bonds of maintenance. The shorter the pre-ownership step on the ladder the greater the mortgage debt is likely to be. The prospective owner has the choice of a long period of pre-ownership climbing the ladder and a light mortgage burden or the reverse. In other words, the "agricultural ladder" may be said to have two ownership rungs, the top rung representing unencumbered and the one below it encumbered ownership.

Encumbered ownership may also be used as a means of enlarging the farm holding. The first farm purchased is not always the final goal for many farmers. In their desire to own land they may be content to purchase a small farm at first instead of accumulating more money in the pre-ownership stage and purchasing a large farm. As the mortgage is being reduced and capital accumulated, they either sell the first farm and buy the size of farm they want or add to the first farm by buying additional land from some neighbor. Out of the 199 farm owners included in this study 13 bought a second or even a third farm, 30 added to the original farm, and 2 did both. This study, therefore, is mainly concerned with the encumbered-ownership stage on the "agricultural ladder" and the progress of Newton farmers to full, unencumbered title to their farms.

Before analyzing the post-ownership steps some explanation of the data used is necessary. Forty-six of the 199 owners had to be omitted. Since the figures are for successive fifth years it was considered best to omit the 24 who had not owned farms for at least five years. In 13 cases farmers also owned land outside of Newton and since the records were obtained only on the land strictly within the Township, these were also omitted. Four farmers had no recorded mortgage indebtedness and were automatically excluded, although it is reported that they had debts when they began farming as owners, but the amount of those debts was not ascertainable. Others were omitted because the indebtedness involved family arrangements or other irregularities. For instance, in one case the farmer was also operating a store and mortgages covered both farm and store. Thus the records of 153 farmers are clear to form the basis of this study.

The history of the reduction of the mortgage debt can be shown by the example of the five farmers who became farm owners between 1878 and 1882 and who form the oldest group included in the study. (These make up the last group in Table III which is the basis of Chart I.) The size of the farm and the mortgage debt of each farmer is shown by five-year intervals in Table II. Even this smaller number of men shows the variations that can be found in the manner in which the encumbered-ownership rung on the "ladder" is climbed. The table also makes clear the methodology followed in making the tables and charts used to illustrate this article.

It will be noticed that only one man increased his acreage after becoming the owner of a farm. This one farm is responsible for the increases in the average

TABLE II. ACREAGE OWNED AND MORTGAGE DEBT OF FIVE FARMERS OF NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN, AT FIVE-YEAR INTERVALS*

	At Beginning		After 5 Years		After 10 Years		After 15 Years		After 20 Years		After 25 Years		After 30 Years		After 35 Years		After 40 Years		After 45 Years	
Farmer	Acreage	Debt	Acreage	Debt	Acreage	Debt	Acreage	Debt	Acreage	Debt	Acreage	Debt	Acreage	Debt	Acreage	Debt	Acreage	Debt	Acreage	Debt
Number 1	70	$832	70	$ 832	70	$ 832	70	$105c	70	$100c	70	c	70	$ 45c	70	c	70	o	70	o
Number 2	94.07	2,500	94.07	2,500	94.07	1,80c	94.07	1,80c	94.07	1,80c	94.07	c	94.07	c	94.07	c	94.07	o	94.07	o
Number 3	80	2,75c	80	2,20c	80	2,20c	80	2,20c	80	2,20c	80	c	80	c	80	c	80	o	80	o
Number 4	67.8	c	67.8	o	67.8	40c	67.8	60c	67.8	60c	67.8	c	67.8	c	67.8	c	67.8	o	67.8	o
Number 5	40	1,00c	40	o	80	c	80	o	140	1,834	140	c	140	c	140	o	140	o	140	o
Totals	351.87	7,082	351.87	5,532	391.87	5,232	391.87	5,65c	451.87	7,434	451.87	c	451.87	45c	451.87	c	451.87	o	451.87	o
Average Size of Farm	70.37		70.37		78.37		78.37		90.37		90.37		90.37		90.37		90.37		90.37	
Average Debt Per Acre		20.12		15.72		13.35		14.41		16.45		o		.99		c		c		o

*Based on Data Obtained in Office of Register of Deeds, Manitowoc County.

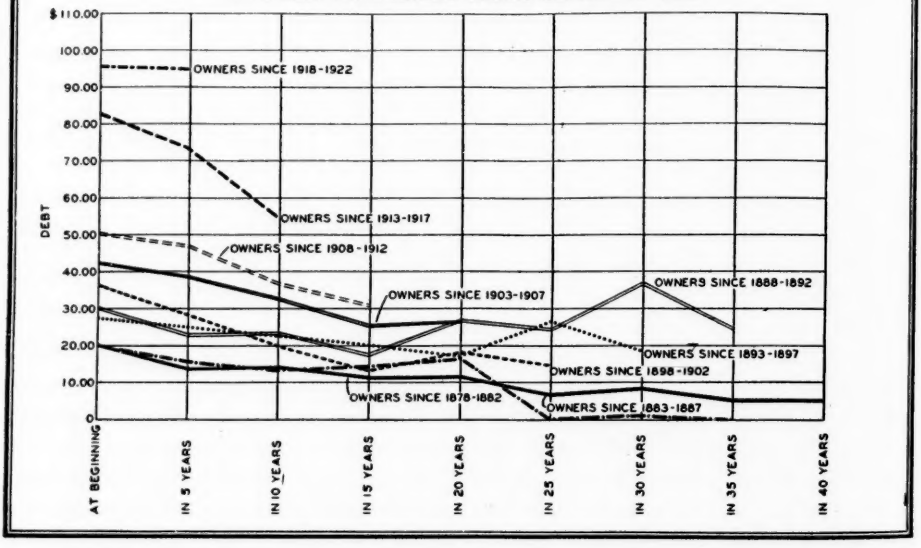
size of farms owned by this group, as indicated in Table II and in Table VI.

Perhaps Farmer Number 2 could be considered the usual case. In an article dealing with farm mortgages in general[3] the average duration of a mortgage was observed to be about five years in Newton. Clearly, Table III and the other tables indicate that few farmers clear their farms of debt within that period. Farmer Number 2 started with a mortgage debt of $2,500 which was reduced to $1,800 within 10 years, and completely paid off within 20 years. Farmer Number 3 also is a typical case. On the other hand, Farmer Number 1 started with a

[3] David Rozman, "Land Credit in the Town of Newton, Manitowoc County, Wisconsin, 1848–1926," 4 *Journal of Land & Public Utility Economics* 371–384 (November, 1927).

CHART I

MORTGAGE DEBT PER ACRE OF 153 FARMERS IN NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN, AT SUCCESSIVE FIVE-YEAR INTERVALS, BY GROUPS WHO HAVE BEEN FARM OWNERS VARYING LENGTHS OF TIME*



*Based on data obtained in Office of Register of Deeds, Manitowoc County, Wisconsin.

mortgage of $832, increased it to $1,050 after 15 years of farming, but the farm was entirely free from debt 10 years later. A small mortgage of $450 came five years after but was paid by the end of the next five-year period. An intimate history of the farmer would be necessary in order to know why the debt increased instead of decreasing as in the case of Farmer Number 2. Perhaps at this time the owner found it necessary to build a new house or barn or make other capital expenditures. We know that in some cases debts of various kinds were incurred which were later consolidated by borrowing on a mortgage and paying up all the smaller obligations in order to have "all debts in one place." We also know that the purchase of automobiles has increased the mortgage debt of some farmers during the last 15 years. This, however, could not be a factor with these five farmers, since they have had no mortgage debt within this period.

In the case of Farmer Number 5, a mortgage of $1,000 was paid up within five years. He had no mortgage on his farm for 15 years in spite of the increase in the size of his farm to 80 acres. However, when he purchased the 60 acres he had a mortgage of $1,834 which was paid up very soon. In this case the purchase of additional land seems clearly to have been responsible for the increase in debt. This illustrates a factor which causes a certain amount of retardation in mortgage reduction, or even increase of mortgage debt. If the farmer is anxious to enlarge his farm and make the final rung in this way, he may have to delay paying his encumbrance a while longer.

Finally, Farmer Number 4 started with no mortgage debt but after 10 years had a small mortgage of $400 which was increased to $600, but everything was paid before the 25th year of farm ownership. It might seem that this mortgage was not the result of the purchase of a

TABLE III. MORTGAGE DEBT PER ACRE OF 153 FARMERS IN NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN, AT SUCCESSIVE FIVE-YEAR INTERVALS, BY GROUPS WHO HAVE BEEN FARM OWNERS VARYING LENGTHS OF TIME*

GROUP	Number in Given Group	Debt at Beginning	In 5 Years	In 10 Years	In 15 Years	In 20 Years	In 25 Years	In 30 Years	In 35 Years	In 40 Years	In 45 Years
Farm Owners Since 1918–1922	18	$95.61	$95.09	.....	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1913–1917	25	82.93	73.68	$54.48	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1908–1912	20	50.35	47.14	36.65	$30.80	.....	.....	.....	.....	.....	.....
Farm Owners Since 1903–1907	26	42.32	38.81	32.50	25.32	$26.41	.....	.....	.....	.....	.....
Farm Owners Since 1898–1902	18	36.50	28.75	19.93	13.19	18.36	$14.68	.....	.....	.....	.....
Farm Owners Since 1893–1897	21	27.60	25.09	22.64	20.15	17.20	26.66	$18.72	.....	.....	.....
Farm Owners Since 1888–1892	10	30.14	22.98	23.21	17.69	26.65	24.45	36.89	$24.81	.....	.....
Farm Owners Since 1883–1887	10	20.34	13.88	14.18	11.12	11.51	6.75	8.42	5.16	$ 4.93	.....
Farm Owners Since 1878–1882	5	20.12	15.72	13.35	14.41	16.45	0	.99	0	0	0
Average	153	50.66	45.37	31.10	20.77	20.20	17.52	17.54	10.62	3.27	0

*Based on data obtained in Office of Register of Deeds, Manitowoc County, Wisconsin.

farm and therefore should not have been included in considering the farmer's final stage on the "agricultural ladder." However, not all debts were mortgage debts. This mortgage may have been the result of the consolidation of smaller obligations secured by notes or even by mere promises based on personal honor. Such obligations were quite common in the early days, we are told. The mortgage may have come as the result of capital expenditures as mentioned above. However, misfortune, sickness and other personal matters are at times responsible for mortgage debts. In other cases, especially some not in this group, the amount of the mortgage constantly increased and bankruptcy was the finale of the story. Such cases indicate inefficiency as a farm manager. However, the success or failure of a farmer to reduce the amount or duration of his mortgage debt is not in itself a criterion by which to judge his efficiency, although thrift and ability must be considered the major determinants of how fast a farmer will completely attain the final rung of the "agricultural ladder."

Table II also shows the method by which the figures for Table III were obtained. At each five-year period the total debt for all farmers in each group was divided by the total acreage owned. All mortgages were considered of equal importance in the calculation, whether they came as a result of the purchase of the first farm or of additional land or for various other purposes which can only be conjectured. If the personal history of each farmer were known the mortgages attributable to the purchase of land might be isolated, although that method would be open to many objections. The improvements are as much a part of the farm as is the land. This table also shows how the figures in Table VI were obtained. The total acreage of every fifth year for each group was divided by the number of farmers in the group, and this gave the average size of farm of each group at these intervals. The debt burden was reduced to a common denominator by placing it on a basis of debt per acre for the average farmer, thereby eliminating the size of the farm and number of farmers in each group. The

TABLE IV. ONE HUNDRED FIFTY THREE FARMERS OF NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN, CLASSIFIED ACCORDING TO NUMBER WITH AND WITHOUT MORTGAGE DEBT AT FIVE-YEAR INTERVALS BY GROUPS WHO HAVE BEEN OWNERS VARYING LENGTHS OF TIME*

		At Beginning		In 5 Years		In 10 Years		In 15 Years		In 20 Years		In 25 Years		In 30 Years		In 35 Years		In 40 Years		In 45 Years	
GROUP	Total Number in group	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt	Number With Debt	Number Without Debt
Farm Owners Since 1918–1922	18	18	0	17	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1913–1917	25	24	1	22	3	19	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1908–1912	20	16	4	16	4	16	4	11	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1903–1907	26	23	3	21	5	19	7	14	12	12	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1898–1902	18	15	3	13	5	11	7	9	9	9	9	8	10	.....	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1893–1897	21	19	2	18	3	16	5	12	9	10	11	11	10	9	12	.....	.....	.....	.....	.....	.....
Farm Owners Since 1888–1892	10	10	0	7	3	8	2	7	3	7	3	5	5	6	4	4	6	.....	.....	.....	.....
Farm Owners Since 1883–1887	10	8	2	7	3	6	4	4	6	4	6	3	7	4	6	2	8	2	8	.....	.....
Farm Owners Since 1878–1882	5	4	1	3	2	4	1	4	1	5	0	0	5	1	4	0	5	0	5	0	5

*Based on data obtained in office of Register of Deeds, Manitowoc County, Wisconsin.

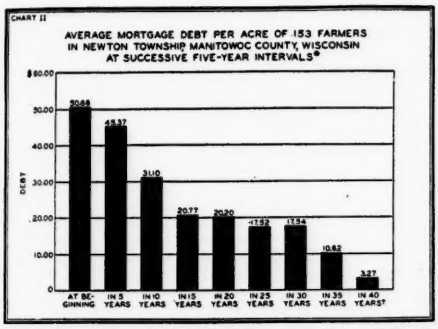
amount of debt per acre ranged from zero to $226.41 in the individual cases. The amount depends upon the size of the cash payment the farmer was able to make, inheritance and other outside sources of income the farmer had at the time of purchase or during his later tenure as owner. Differences in land values, resulting from differences in quality of soil and the time at which the farm was bought, account for other variations.

An examination of Chart I and Table III will show that each group has reduced its mortgage debt fairly consistently. In only 12 out of a possible 45 cases has the average debt per acre for a group increased instead of decreased. For instance, Group 5 increased the average debt per acre between the 15th and 20th years of ownership. Comparison of this with Table VI will show that the group increased the average size of farm from about 75 acres to 83 acres, the largest increase for any five-year period. Evidently the increase in the acreage operated had something to do with the increase in the mortgage debt. In the last group the increase in acreage came between the 20th and 25th years of ownership which was accompanied by a small increase in debt. The other cases present no such correlation and the cause will have to be sought elsewhere.

Another interesting fact which Chart I reveals is the encumbrance at the beginning of ownership for these various groups. The oldest farmers began with a debt of only $20 an acre; this increased little by little till in the third group it was $50.35 an acre. It increased to almost $83 for those who started about 10 years ago and to $96 per acre for those who started only five years ago. The average for all the groups is $50.66, as shown in Table III and Chart II.

Table IV shows the number of farmers with and without mortgage debt in successive fifth years within each of the groups indicated on Chart I. This shows the continuous increase in the number of farmers who had paid off their mortgage debt. The post-ownership progress on the "agricultural ladder" is pictured in other terms in this table.

Chart II shows the rate of reduction for the 153 farmers as one group.[4] The succeeding bars have progressively fewer farmers because fewer have farmed each following length of time represented by the bars. Nevertheless, the chart presents a good picture of the general reduction of debt as a final step to complete



*Based on data obtained in Office of Register of Deeds, Manitowoc County, Wisconsin.

†At the end of 45 years the repaid indebtedness is wiped out.

Table V. Number of Farmers Represented by Each Bar on Chart II.

Bar	Number of Farmers
"At Beginning"	153
"In 5 Years"	153
"In 10 Years"	135
"In 15 Years"	110
"In 20 Years"	90
"In 25 Years"	64
"In 30 Years"	46
"In 35 Years"	25
"In 40 Years"	15
"In 45 Years"	5

[4] If averages had been calculated of the mortgage indebtedness that the farmers actually had in every fifth calendar year, like 1900 or 1910, thus entirely disregarding the varying lengths of time that the individual farmers had been farm owners, the results naturally would not have shown any progress up the "ladder."

unencumbered ownership. The number of farmers represented in each bar is shown in Table V.

A noteworthy fact revealed by Chart II is that after the first 15 years the average debt per acre remains almost stationary for a decade and a half. This is explained by the fact that the farmer is anxious to reduce the high debt consequent to the purchase of a farm. He fears the risk of losing his property through foreclosure of the mortgage should some misfortune happen. However, as soon as the debt has been reduced to less than half of the original amount, he feels easier and starts to make improvements which call for more capital. This retards the reduction of the mortgage debt or actually increases it for a time.[5]

The average increase in the size of farms is shown in Table VI. Here the farmers are grouped on the basis of the time at which they acquired their first farm. The number in each group, with the exception of the last three, is remarkably uniform, ranging from 18 to 26. In the last group are five men who have been owners for more than 45 years. The groups containing the "old-timers" are naturally smaller because of retirement from active work or mortality. Nevertheless, it is a rather remarkable showing that 46 of the 153 men, or 30%, had been farm owners more than 30 years. Also of interest is the fact that the size of the farm for all groups at the beginning of ownership is practically constant, whether they started 5 or 45 years ago. With the exception of the seventh group, the average size of the first farm ranges from about 67 to 75 acres.

With an average acreage of 70.43 acres at the beginning of ownership there is a

[5] In many cases, of course, there was no fear of foreclosure because of the small amount, or even complete absence, of the mortgage debt, while a state of general prosperity in agriculture during much of the period under study together with other factors also had an effect. The general inclination was to reduce the mortgage debt before spending very much money for other purposes. Even those who did not need to fear foreclosure preferred first to remove the mortgage debt before making very large improvements.

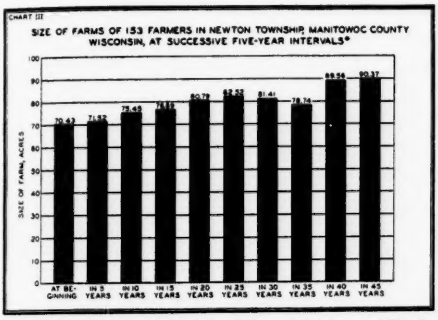
TABLE VI. SIZE OF FARM OF 153 FARMERS IN NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN, AT SUCCESSIVE FIVE-YEAR INTERVALS, BY GROUPS WHO HAVE BEEN FARM OWNERS VARYING LENGTHS OF TIME*

GROUP	Number in Group	At Beginning	In 5 Years	In 10 Years	In 15 Years	In 20 Years	In 25 Years	In 30 Years	In 35 Years	In 40 Years	In 45 Years
Farm Owners Since 1918–1922	18	72.48	74.48	.....	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1913–1917	25	70.10	73.16	75.92	.....	.....	.....	.....	.....	.....	.....
Farm Owners Since 1908–1912	20	67.43	67.20	69.15	69.15	.....	.....	.....	.....	.....	.....
Farm Owners Since 1903–1907	26	72.19	70.79	75.61	76.97	77.73	.....	.....	.....	.....	.....
Farm Owners Since 1898–1902	18	71.68	73.90	77.74	74.96	83.33	83.05	.....	.....	.....	.....
Farm Owners Since 1893–1897	21	75.57	77.43	83.86	91.97	86.70	86.34	84.56	.....	.....	.....
Farm Owners Since 1888–1892	10	59.13	63.09	67.83	67.83	67.53	67.53	67.53	66.53	.....	.....
Farm Owners Since 1883–1887	10	67.34	64.84	70.84	72.34	80.34	84.34	84.24	85.15	89.15	.....
Farm Owners Since 1878–1882	5	70.37	70.37	78.37	78.37	90.37	90.37	90.37	90.37	90.37	90.37
Average	153	70.43	71.52	75.45	76.89	80.79	82.52	81.41	78.74	89.56	90.37

*Based on data obtained in office of Register of Deeds, Manitowoc County.

general though not constant increase in the size of farms as time goes on. In a few cases a decrease is evident for one or more periods but in every group farmers are now owning larger farms on the average than when they started. The size of the farm at the present time is the extreme right hand figure of the row for each group.

These figures agree with those found in a state-wide study of Wisconsin farmers based upon 2,254 questionnaires. The average acreage of all farmers was 150 acres but those who were between 20



*Based on data obtained in Office of Register of Deeds, Manitowoc County, Wisconsin.

and 24 years of age averaged only 90 acres per farm, whereas the men in the 60 to 64 year age-group owned 213 acres. A progressive increase in the average size of farm owned was apparent between these two age-groups, but a decrease to 172 acres was observed for the oldest group, namely, those 65 or more years of age.[6] The same tendency was noted in the Walnut Grove study but here farmers often rented additional land as an intermediate step.[7]

In the previous article it was stated that the acquisition of farm ownership in the Township of Newton is aided by low general land values as compared with the values of high tenancy regions, such as Knox County, Illinois, and by a low interest rate on farm mortgage indebtedness. Logically the payment of the mortgage indebtedness after acquiring ownership should be aided by the same two factors—the small amount of the original debt and the shorter time required to pay it off by reason of the low interest rate. The payment of the mortgage debt is also, no doubt, aided at the present time by the small size of the farms in Newton Township, which affects not only the absolute amount of the debt but the ease of payment. It is easier to pay off the debt on a small farm than a proportionate amount of debt on a large farm if the owner of a large farm has to hire high-priced help which reduces his net earnings, whereas a small farm can be operated entirely by the owner and his family. Inheritance, of course, here as elsewhere, also aids in paying off the mortgage debt, as well as in the acquisition of farm ownership.

[6] Hibbard and Peterson, *op. cit.*, supra n. 2.

[7] Ten Haken, *op. cit.*, supra n. 2, at 19–24.

COMPOSITE PUBLIC UTILITY COMPANIES: SOME CAUSES AND EFFECTS ON PUBLIC UTILITY HOLDING CORPORATION SYSTEMS

By KENNETH FIELD

THE same corporate and intercorporate structures which serve one class of public utility properties have long served other classes of properties as well. That is, the same corporation or the same system which supplies electric power service frequently supplies gas, operates electric railways, engages in manufacturing, and/or produces oil. Of late, however, this tendency toward multiplicity of operations has been greatly stimulated. It seems pertinent, therefore, to inquire into some[1] of the historical origins and causes of this composite development.[2] Such a study may be conveniently divided into two parts: (1) an investigation of the extent and causes of composite operating companies; and (2) an investigation of the effects of composite operating companies on the composite character of public utility holding corporation systems.

I. Composite Operating Companies

Table I shows the relation which composite establishments in the electric light and power industry bore in 1902–1922 to simple electric light and power establishments with reference to important standards of comparison. It will be noted that, while the ratio of the number of composite establishments to total establishments declined in 1922, relative to all previous census years, the ratios in other important respects showed an increase over those other years. Further, if the commercial plants alone are considered the trends are especially striking. This fact follows because the experience of private establishments varied somewhat from that of municipal establishments. For example, during the period 1912 to 1922, the percentages for purely electric *municipal* establishments increased for each item; whereas the corresponding percentages for purely electric *private* establishments decreased substantially—taking the period as a whole. Further, the tendency for the two groups to move in opposite directions is also present among the composite establishments. Thus, from 1912 to 1922 the percentages for composite *municipal* establishments have decreased for each item; whereas those for composite *private* establishments increased for all items except "number of establishments." The tendency of municipal establishments to show a trend away from greater compositeness is probably to be explained by the fact that many of the present-day municipal plants are in communities which are too small to have a central water supply (the most common associated enterprise for municipal plants), while the plants in larger centers have passed into private

[1] This investigation is confined to composite public utility operating companies and their effects on holding corporation systems in the electric light and power industry.

[2] The Census Bureau (*Central Electric Light and Power Stations*, 1922, p. 7), uses the term "composite" to describe establishments which render more than one type of service. The term is used in the same significance in this paper. Those establishments which render only one type of service are termed "simple."

control. However, this paper is concerned primarily with commercial establishments. For these, the conclusion is inevitable that the industry as a whole is becoming more composite.[3] The opposite movement of the ratio of numbers of establishments may be explained largely by the consolidation movement. This movement has united companies in thickly settled areas where composite service is most profitable, but has left many simple companies operating in less densely populated regions. An additional reason is found in the tendency to incorporate electric generating plants.

Turning now to fields of activity, it will be noted from Table II that a substantial majority of the composite establishments in the electric power and light industry combine water, gas, and/or electric railway services with that of supplying electricity. Thus in 1922, out of a total of 2,364 composite establishments, 1,304 supplied water, 276 supplied gas, and 55 supplied electric railway service.[3a] However, despite the

[3] There is also a tendency to eliminate some of the composite activites. This is especially true with reference to unprofitable departments. Thus electric railways are constantly being segregated from electric power properties. This situation is mentioned later in the present article; but full discussion would involve problems far beyond the scope of this paper.

[3a] The figures for each type of service include duplicates. The total number of establishments involved is 1,555 of the 2,364.

TABLE I. RELATIVE IMPORTANCE OF PURELY ELECTRIC AND COMPOSITE ESTABLISHMENTS, ACCORDING TO SELECTED STANDARDS, 1902–1922*

Item	Census Year	Percentage of Aggregate for all Establishments					
		Purely Electric			Composite		
		Commercial	Municipal	Total	Commercial	Municipal	Total
Number of Establishments	1922	40.6	22.2	62.8	18.7	18.5	37.2
	1917	42.6	16.7	59.3	22.0	18.7	40.7
	1912	42.3	10.8	53.1	27.8	19.1	46.9
	1907	45.0	11.1	56.1	28.4	15.5	43.9
	1902	48.6	10.5	59.1	28.9	12.0	40.9
Value of Plant and Equipment	1922	45.5	3.0	48.5	49.3	2.2	51.5
	1917	54.6	2.0	56.6	41.2	2.2	43.4
	1912	50.8	1.1	51.9	45.6	2.5	48.1
	1907	58.4	2.1	60.5	37.8	1.7	39.5
	1902	63.5	2.7	66.2	32.1	1.7	33.8
Total Revenue	1922	46.2	4.3	50.5	45.8	3.7	49.5
	1917	54.8	3.3	58.1	37.9	4.0	41.9
	1912	50.2	2.5	52.7	42.5	4.8	47.3
	1907	57.7	3.8	61.5	34.4	4.1	38.5
	1902	63.4	4.1	68.5	28.2	3.3	31.5
Kilowatt Capacity of Generators	1922	48.9	3.7	52.6	44.8	2.6	47.4
	1917	58.2	3.1	61.3	35.4	3.3	38.7
	1912	52.6	2.3	54.9	39.7	5.4	45.1
	1907	58.1	3.5	61.6	34.2	4.2	38.4
	1902	62.1	5.4	67.5	28.6	3.9	32.5
Kw. Hrs. Generated	1922	52.4	3.0	55.4	43.0	1.6	44.6
	1917	63.8	2.2	66.0	32.2	1.8	34.0
	1912	56.0	1.4	57.4	39.3	3.3	42.6
	1907	63.7	2.5	66.2	31.3	2.5	33.8
	1902	68.4	4.8	73.2	23.6	3.2	26.8

*Census Bureau, *Central Electric Light and Power Stations*, 1922, pp. 15 and 18; 1907, p. 20.

fact that the combined figures for municipal and private plants show that the electric-water combination was far more frequent in 1922 than was any other type of combination, it is probable that combinations with water works are not of more importance for private companies than are combinations with gas plants. This inference may be drawn from the data in Table III, which separates the associated activities of private central stations from those of municipal central stations for the year 1907. It will be noted that in 1907 virtually all municipally owned composite establishments were the electric-water combination. The separation as to ownership is not made in the 1922 Census (Table II). But if the situation in 1907 has substantially persisted, at least to 1922, the dominance of the water-electric combination in 1922 is explained largely by the inclusion of municipally-owned plants, and this explanation is fortified by the well-known predominance and stability of municipal ownership[4] of water supply systems. Further, if value of plant, total revenue, net earnings, and other factors be considered, it is probable that the order of importance of associated activities of private companies would be: gas, water, electric railways. Besides these principal associated enterprises, activities of composite establishments include steam heating, mining, telephone service, ice manufacturing, etc.

Identification of these activities serves as a convenient point of departure for a study of the causes of this movement. Although the causes are numerous, two are of outstanding significance: (1) economies of common operation; and (2) profits from pooling earnings of strong and weak companies.

Economies of Common Operation. The services mentioned above have elements in common with those of electric power and light service. These common elements are frequently the key to substantial economies. To illustrate, gas and water services require meter reading, billing, accounting, and collecting as does electric service. When these common operations are brought under single management, much duplicate activity

TABLE II. COMPOSITE ELECTRIC POWER AND LIGHT ESTABLISHMENTS*

Services Rendered in Addition to Electric Light and Power	Number of Establishments†
Water	1,255
Gas	211
Gas and water	34
Gas and electric railway	26
Electric railway	14
Gas, water and electric railway	5
Water and electric railway	10
Water and electric railway	809
Steam heating, mining, telephone, ice, etc.	
Total water	1,304
Total gas	276
Total electric railway	55
Total of composite establishments	2,364

*Census Bureau, *Central Electric Light and Power Stations*, 1922, page 7.
†The figures for each type of service include duplicates. The total number of establishments involved is 1,555 of the 2,364.

TABLE III. COMPOSITE ELECTRIC POWER AND LIGHT ESTABLISHMENTS, 1907*

Associated Enterprises	Number of Establishments		
	Commercial	Municipal	Total
Waterworks	320	716	1,036
Gas plants	317	12	329
Lumber and grist mills	307	3	310
Ice manufacturing	212	...	212
Steam heating	114	4	118
Cotton gins	35	...	35
Electric railways	32	...	32
Miscellaneous	231	3	234
†Total associated enterprises	1,568	738	2,306
†Total composite establishments	1,355	731	2,066

*Census Bureau, *Central Electric Light and Power Stations*, 1907, page 27.
†The excess of associated enterprises over total composite establishments is attributable to the fact that several other enterprises may be associated with a single central station.

[4] In the case of composite municipal establishments, the controlling motives for taking over enterprises are usually social and political. Once obtained, the enterprises are combined in accordance with the functional organization of the government. Since this paper is confined to public utility corporations, further discussion of municipal establishments is omitted.

is eliminated. For example, the meter readers read the meters of all classes of service on a single visit. The addressograph division addresses but one bill head per customer. The billing clerks insert but one bill per customer to the billing machine. The accounting division keeps but one account with a customer. Payments for all services rendered to a single customer go through on a single cashier's stub. The accounting division records the payment for all classes of service by a single operation. The collection division follows up delinquent accounts for all types of service by single letters or single visits. The same inspector turns off and turns on all kinds of service. The same trouble man acts in all classes of emergencies.[5]

Likewise, telephone service has elements in common. Joint poles are the rule in most communities; but in many rural communities the problem of maintaining lines and of answering trouble calls makes common operation of electric and telephone services more economical than separate operation. In the case of electric railways and ice manufacturing establishments, the common element is a large demand for electricity, which can be supplied cheaper by large-scale generation. Steam heating is frequently a by-product of generating electricity by steam. Coal mining is an ancillary stage in the production of electricity.

Pooling of Profits. In addition to these factors, another which bulks large in some cases is the practice of pooling the credit and earnings of several classes of service so that a fair return may be earned on all classes of service. This practice is apparently fostered by at least one state commission;[6] and has been followed in many cases. It, of course, affords opportunities for promoters to profit by linking an establishment having poor earnings to one with good earnings, since securities bought on a poor earnings basis have an enhanced value when placed on a good earnings basis by pooling earnings.[7]

II. Composite Holding Corporation Systems

Load Factor of Managerial Talent. The presence of composite operating companies has affected holding corporation systems in many ways. First, each of

[5] No figures have been published which show in dollars and cents the savings from common operation of electric, water, and gas services; but figures for certain districts in the City of Chicago illustrate the amounts involved. The districts referred to are the Germania and Austin districts. These thickly populated areas were formerly served by Public Service Company of Northern Illinois, but are now leased to the Commonwealth Edison Company. Under the terms of the leases, Commonwealth Edison Company is allowed 20% of gross revenues for the operating services mentioned above. (Carrying charges on investment and production costs are separately accounted for). It may be inferred from this case that these costs bulk large in the total cost of supplying electric service, and that they are an important factor in the promotion of composite operating companies. However, too much must not be inferred from the percentages found in these contracts. First, the 20% item represents total cost of the specified operating services; whereas the savings might well represent only 3 or 5% of gross revenues. Second, the companies bound by these contracts are under common financial control, a circumstance which makes contract terms less exact than competitive conditions would dictate. To the extent that common financial control has influenced the terms of the leases, the indicativeness of the percentage has been impaired.

[6] Cf. *Re Continental Gas & Electric Corporation*, P U. R. 1926 C, 837 *et seq.* (Neb.)

[7] This motive is also present in consolidations of companies of like character. From the consumer's point of view, the pooling of earnings in cases in which economies are not possible means that the users of one class of service bear a part of the burden of paying for other classes of service. This burden seldom takes the form of a rate increase on the electric service, but it probably postpones rate reductions that companies would otherwise be forced to make.

The more enlightened regulatory policies require that each department earn its own way; but even this policy can only be approximated because of the ease of shifting overhead charges.

the various types of service rendered requires certain types of specialized managerial talent which are not common to the other types of service. Since the presence of composite operating companies in holding company systems requires the group management organization to retain specialized executives for each type of service, an inducement is offered to acquire simple companies which render those services. This action is taken in order to improve the load factor on specialized managerial staffs.[8]

Extension of Managerial Interest. Along the same lines, the familiarizing of executives with different types of service tends to direct their interests into the allied industries.[9] For example, the United Gas Improvement Company, organized in 1882, originally confined its operations to the gas industry exclusively. In 1902, however, that company controlled 34 subsidiaries, of which 5 did both a gas and an electric business. Since that time the interests of this holding company have been so extended in the electric light and power industry that today the financing and operation of electric properties is the most important part of its business.[10] Similarly, Hodenpyl-Hardy and Company, Incorporated, was originally interested primarily in the electric railway industry but some of its electric railways did a power business. From this beginning the interests of this group in the electric light and power industry increased until it controlled two large electric power and light holding corporation systems in addition to an electric railway holding company system.[11] Likewise, the early field of activity of The North American Company was "the intensive development of electrification of railroads and the attendant transmission of electric energy necessary therefor";[12] but in 1925

[8] Three groups of cases must be recognized here: (1) cases in which the selling system is equipped to manage all phases of the associated activites economically, while the purchasing system is not; (2) cases in which both systems are equipped to manage the properties economically; and (3) cases in which the purchasing system is equipped to manage the properties more economically than the previous owners. In the first class of cases, overhead wastes may offset economies of composite operation, and purchase usually results from a desire to get a foothold in a given territory or from a desire to round out a system. If the system does not intend to engage in the associated activities extensively, it frequently reorganizes the properties, segregating the unwanted enterprises in separate corporations. Control of the properties is then transferred to other interests. In the second class of cases, considerations of technical overhead are a matter of indifference. Desires to gain a foothold or round out a system are prominent factors in this class of consolidations. In the third class of cases, opportunities for developing better load factor on managerial staffs arise.

[9] The mere interest of executives would not be sufficient by itself to cause the development of composite holding company systems. Undoubtedly, the profit motive has been dominant. But it is unlikely that these executives would have diverted their resources so completely into the other industries had they not first familiarized themselves with these industries.

[10] Cf. Federal Trade Commission, *Electric Power Industry*, vol. 2, p. 167.

[11] Federal Trade Commission, *Control of Power Companies*, p. 190.

[12] *The North American Company* (a booklet published by the Company, p. 15). The North American Company was incorporated in New Jersey for the expressed purpose of taking over the assets of the Oregon & Transcontinental Company, an Oregon corporation. (50 *Commercial & Financial Chronicle* 771, 875). The Oregon & Transcontinental Company had operated since 1881 (*Commercial & Financial Chronicle*, June 1883, Investors Supplement, p. xlv) as a railroad holding and financeering corporation, but found itself unduly hampered by its charter (49 *Commercial & Financial Chronicle* 719). To remedy this situation, the management of the Oregon company caused the incorporation of the North American Company. (For a statement of the steps involved in this action see 48 *Commercial & Financial Chronicle* 693, 828; 49 *Ibid.* 301,616,719; and 50 *Ibid.* 771,834). It then caused the shares of the new company to be exchanged for the shares of the old company and delivered the assets of the old corporation to the new. Thus, at first, the North American Company had all the earmarks of a railroad holding company, as may be observed from the fact that the assets transferred to it consisted of: $5,408,078 in railroad bonds, 361,347 shares of railroad stocks, 9,268 shares of Oregon Improvement Co. common, 1,524 shares of Oregon Iron & Steel Co., $130,000 of miscellaneous assets, $3,618,302 in bills receivable, and $103,341.95 cash. (From the statement made to

(Footnote 12 continued on page 79)

nearly 92% of its net income came from other than electric railway sources.[13]

Restriction of Competition. In connection with the early development of composite public utility systems, it may be noted that promoting interests often desired to restrict competition between different kinds of public utility service. This was especially true with respect to the gas and electric industries. Lighting was a very important part of the gas business at the time electric lighting was introduced commercially in 1882. In the subsequent period a bitter struggle between gas companies and electric light and power companies took place. In order to eliminate this competition, attempts were often made to consolidate the electric companies with the gas companies. The movement toward monopoly thus played an important part in the formation of composite operating companies and of composite holding company systems in this early period. Since the formative period of the electric light and power industry, the gas industry has developed new uses for gas. These new uses do not compete so severely with electricity. However, the competitive factor is still an influence promoting consolidation of gas and electric companies.

Solution of Problems Prior to Amalgamation. The opportunity to achieve economies through the formation of composite operating companies also affects the character of holding company relationships for temporary periods. Many of the operating companies in each of the public utility industries confine their activities to one type of public utility service. The formation of composite establishments in these cases, therefore, involves the consolidation of several existing companies to form a single composite company. As would be expected, problems frequently must be worked out with reference to such consolidations. These make it desirable to bring the companies under single stock control as a first step in the consolidation project. For instance, in 1924, the American Power and Light Company purchased control of the Miami Electric Light and Power Company, the Miami Gas Company, the Miami Beach Electric Company, the Southern Utilities Company, the Daytona Public Service Company, the Ormond Supply Company, the Lakeland Gas Company, the St. Johns Electric Company, and the Southern Holding Company for the expressed purpose[14] of consolidating these companies to form a single operating company. The problems incident to that amalgamation were not finally solved until December, 1925, when the companies mentioned were amalgamated to form the Florida Power and Light Company.[15]

Segregation of Former Departmental Activities. The character of holding company systems is also affected by the seg-

(*Continued from page 78*)

the New York Stock Exchange, August 18, 1890, see 51 *Commercial & Financial Chronicle* 681). At the time of incorporation of the Oregon & Transcontinental Company, there had been an agreement between Henry Villard (organizer of the company) and Thomas Edison, looking toward the electrification of lateral railway lines in the Northern Pacific Railroad system. (Booklet published by Company, *op. cit.*) Apparently nothing was done under this agreement. But after the organization of the North American Company, a new agreement was made "for the intensive development of electrification of railroads and the attendant transmission of electric energy necessary therefor." (*Ibid.*) Historically, however, the North American Company abandoned the railroad field very shortly and centered its attention on electric railways It would appear, therefore, that the word "railway" would have been a happier choice in the above quotation of agreement, if historical results be considered. In recent times, as indicated elsewhere, the Company has substantially withdrawn from the electric railway field also.

[13] *The North American Company*, p. 35.

[14] Federal Trade Commission, *Control of Power Companies*, p. 107.

[15] 88 *Electrical World* 1243-1244; *Financial World*, June 19, 1926, p. 26.

regation of departments of composite operating companies into separate corporations. To illustrate, before 1907 the economies of large-scale generation had led to the rendering of electric light and power and electric railway services by composite establishments. At that time the electric railway industry was one of the most prosperous in the public utility group. But during the period since 1907, the phenomenal increase in motor transportation, among other things, has seriously affected the credit of electric railways. On the contrary, the credit of the electric light and power industry is exceedingly good. This difference in credit affects financing as follows: New securities of a company which supplies both electric light and power and electric railway services represent a small risk in the electric light and power properties and a large risk in the electric railway properties. Since the credit of electric railways is so poor, the investor is unwilling to purchase securities of such a composite company except at a higher rate of return than he is willing to accept upon securities of pure electric light and power companies, even though the new funds are to be invested entirely in the electric light and power properties. Since the electric railway industry requires comparatively little new capital,[16] while the electric light and power industry has recently required approximately one billion dollars per year,[17] it is desirable, in many cases, to place the two types of properties in separate corporations for the purpose of financing new capital requirements. The histories of large holding company systems afford several notable examples of the segregation of electric railway properties in separate corporations. Among the more prominent instances are those of the internal reorganization of the American Gas and Electric Company system in 1917;[18] the internal reorganization of the Lehigh Power Securities Corporation system in 1920;[19] the internal reorganization of the Republic Railway and Light Company system in 1920;[20] and the internal reorganization of the Commonwealth Power, Railway and Light Company system in 1922.[21] The effect of segregating departmental services in new corporations is to give rise to new stock control relationships since the previous owners of the departments will be the owners of the new corporation. In case it is deemed advisable to continue the single control of related services which have been separately incorporated, a permanent holding corporation function arises.

All factors combined have produced a situation in which most, if not all, public utility holding corporation systems in the electric light and power industry conduct operations in several industries. Table IV shows the more prominent fields of activity of 45 of the larger public

[16] The gross capitalization of electric railways is actually declining according to census returns. In 1917 the gross capitalization was $5,532,223,818, and in 1922 it had decreased to $5,446,794,457. (See Census Bureau, *Census of Electrical Industries* (*Electric Railways*) 1922, p. 11, Table 2.) The aggregate figures for the industry do not present a clear picture of the positions of individual companies. On the one hand, there has been a considerable shrinkage in capitalization for electric interurban lines and street railways in small communities. (The prepublication Census Bureau release of September 22, 1928, shows that 141 electric railway companies ceased operations between January 1, 1922, and January 1, 1927.) On the other hand, properties in large urban centers have expanded. However, the credit of the industry is so impaired that expansion out of earnings is common where expansion takes place.

[17] 91 *Electrical World* 32. For the period 1919 to 1927, the value of plant and equipment in the electric light and power industry increased from $3,711,924,000 to $8,084,000,000.

[18] Federal Trade Commission, *Control of Power Companies*, pp. 82-3, 86.

[19] *Ibid.*, p. 14

[20] *Ibid.*, p. 264.

[21] *Ibid.*, p. 198.

utility holding corporation systems. It may be noted that in no case does one of these systems confine its activities to the rendering of a single class of service; and that in the cases of some of the larger systems, the fields of activity are very numerous. For instance, the Cities Service Company system supplies electric, manufactured gas, natural gas and electric railway service; produces oil, and maintains pipe lines, refineries, steamship companies, etc.[22] The American Power and Light Company system supplies electric, manufactured gas, natural gas, transportation, water, ice, and other services.[23] Likewise, the Middle West Utilities Company system renders

[22] *Annual Report to Stockholders*, 1928, pp. 19-20.
[23] Moody's *Manual of Investments*, Public Utilities, 1929, p. 632.

TABLE IV. SERVICES RENDERED BY HOLDING COMPANY SYSTEMS*

System	Service†				
	Electric	Gas	Transportation	Water	Misc.
American Gas & Electric Co.	X	X	X	.....	.....
American Lt. & Trac. Co.	X	X	.....	.....	.....
American Pr. & Lt. Co.	X	X	X	X	X
American W. W. & Elec. Co.	X	.....	X	X	X
Associated Gas & Elec. Co.	X	X	X	X	X
Atlantic Public Utilities, Inc.	X	.....	X	.....	.....
Buffalo, Niag. & Eastern Pr. Corp.	X	.....	X	.....	.....
Central Public Service Co.	X	X	X	X	.....
Central States Pr. & Lt. Corp.	X	.....	.....	.....	X
Cities Service Co.	X	X	X	.....	X
Columbia Gas & Elec. Corp.	X	.....	X	X	.....
Commonwealth Lt. & Pr. Co.	X	X	.....	X	X
Consolidated G. E. Lt. & Pr. Co.	X	X	.....	.....	.....
Duke Power Co.	X	X	X	.....	.....
East Coast Utilities Co.	X	.....	.....	.....	X
Eastern G. & Elec. Securities Corp.	X	X	.....	.....	.....
Electric Pr. & Lt. Corp.	X	X	X	X	X
Electric Public Service Co.	X	X	X	.....	X
Empire Power Corp.	X	X	X	.....	X
Engineers Public Service Corp.	X	X	X	X	X
Federal Light & Traction Co.	X	X	X	X	X
General Gas & Electric Corp.	X	.....	X	.....	.....
International Utilities Corp.	X	X	X	.....	.....
Lehigh Power Securities Corp.	X	X	X	X	X
McGraw Electric Co.	X	X	.....	X	X
Middle West Utilities Co.	X	X	X	X	X
Midland United Co.	X	X	X	.....	.....
Mohawk-Hudson Power Corp.	X	X	.....	.....	.....
Mohawk Valley Co.	X	X	.....	.....	.....
National Electric Power Co.	X	X	X	.....	.....
National Power & Light Co.	X	X	X	.....	.....
National Public Service Corp.	X	X	X	X	X
Nevada-California Electric Corp.	X	X	X	X	X
The North American Co.	X	X	X	X	X
North American Lt. & Pr. Co.	X	X	X	X	X
Pacific Lighting Corp.	X	X	.....	.....	.....
Penn-Ohio Edison Co.	X	X	X	.....	.....
Peoples Light and Power Corp.	X	X	X	X	.....
Public Service Corp. of N. J.	X	X	X	.....	.....
Southeastern Power & Light Co.	X	.....	X	.....	.....
Standard Gas & Elec. Co.	X	X	X	X	X
United Light and Power Co.	X	X	X	.....	.....
United Public Service Co.	X	X	.....	.....	.....
Utilities Power & Light Corp.	X	X	X	X	X

*Moody's *Manual of Investments*, Public Utilities.
†This is not intended to be an exhaustive survey. Many of these systems supply services in addition to those specified.

electric light and power, electric railway, manufactured gas, natural gas, ice, water, heat, and other services.[24] The Associated Gas and Electric system renders electric, gas, transportation, water, heat, and other services.[25] The Standard Gas and Electric Company system renders electric, gas, transportation, water, ice, telephone, and heating services; and in addition, produces oil.[26]

III. Conclusion

In conclusion, it may be said that composite public utility operating companies are promoted for many reasons, among the most prominent of which are the economies of common operation and the profit possibilities of pooled earnings.

The presence of composite operating companies and the creation or disintegration of them promote "compositeness" of holding company systems. (1) The presence of composite operating companies leads to a diversity of simple companies in systems because such diversity betters the load factor on managerial talent and provides an outlet for extended managerial interest. Further, common financial control of diverse but competitive services restricts competition, while the presence of a staff capable of managing the competitive property makes it profitable to eliminate competition by this means. (2) The intention of creating composite operating companies causes composite holding company development because the complexity of consolidation problems usually makes it necessary to establish common financial control over the different operating properties as a first step in amalgamation. (3) Finally, the disintegration of composite operating companies increases the "compositeness" of holding company systems because the holding company becomes parent to the corporations organized to take over the separate departments.

[24] *Annual Report*, 1926, p. 36.
[25] *Annual Report and Year Book*, 1925, p. 11.
[26] Moody's *Manual of Investments*, Public Utilities, 1929, p. 677.

MEASUREMENT OF RISK IN PUBLIC UTILITY INDUSTRIES[1]

By JOHN F. REINBOTH

RISK is an inescapable part of all economic activity. Goods and services must be produced before they can be consumed and, therefore, producers must make some estimates of future consumption. Any forecast involves some margin of error, no matter how slight, and the impossibility of ever *accurately* predicting and adequately providing for future human wants lies at the basis of risk in business.

The various public utility industries are subjected to a smaller amount of normal business risks than many other lines of economic endeavor, for in them the uncertainties of private competition have been partially displaced by public regulation. The price which the utilities may charge for their product is limited by regulatory commissions, but, they are permitted to charge enough to net a specified minimum rate of return on the fair value of their property. Thus many of the normal risks of doing business are supposed to have been reduced in these publicly regulated industries. Losses have been minimized, but so have profits.

The purpose of the present investigation is to determine the extent to which risk is present in the major public utility industries,[2] to arrange these industries according to the degree of fundamental, long-time risk inherent in their operations, and to analyze them for shifts in their relative standing during the past 20 years.[3]

Investors Appraise Industrial Risk. The *degree* of risk in any particular business is reflected, to some extent, in what it has to pay for the use of money in competition with other industries. Just as business risks, under our present system of money economy, are the result of freedom of choice of thousands of consumers in deciding *when* they will buy, *what* they will buy, and *where* they will buy, so do thousands of investors appraise these risks in deciding when they will invest, how much they will invest, and in what business enterprises they will invest their surplus funds.

To secure the long-time use of other peoples' money, a corporation may issue either bonds or stock, or both.[4] Since bonds have a prior claim to assets and

[1] The present article discusses the purpose of the study, the theoretical back-ground, the general problems involved, and the statistical technique employed. The second article which will appear in an early issue, will present the special problems, statistical and otherwise, encountered in selecting and summarizing the basic data of each utility group, analyze the results obtained, and survey the implications of these results.

Acknowledgment is made to Professor H. B. Dorau, who conceived the original idea of this investigation and outlined the main lines of approach. Further acknowledgment is due to Mr. Myron H. Umbreit who aided in compilation of the data.

[2] The public utility groups studied include the steam railroads, telephone and telegraph, electric light and power, gas, combined electricity and gas, electric railways, combined electric railways and electric light and power industries, and, for comparative purposes, a group of important industrial concerns compiled by the Standard Statistics Company. The fields of this industrial group were used as published without analysis or modification.

[3] Some business risks are inherent in the very nature of the industry. These are the inescapable, long-time, underlying risks with which this investigation is primarily concerned. Other risks are temporary and vary with fluctuations in the money market, price level, and general business conditions; they affect all industries in very much the same way, but not always to the same extent. Every business has more or less of both types of risks.

[4] Intermediate forms of securities, such as debentures, and prior lien and preferred stocks, are hybrid forms and combine the elements of both bonds and stocks.

earnings, they are more stable in yield over a period of years and less sensitive than stocks to temporary shifts in the fortunes of the business. Bond yields, therefore, afford a better measure of the long-run, underlying risks of a particular industry than is obtainable from stock yields.

Isolating the Risk Element. The income which the bond-holder receives from his investment is (1) partly compensation for the use of his funds by others, or reward for the sacrifice of waiting; (2) partly insurance against the risk of losing income or capital in whole or in part; and (3) partly profit, or the wages of management, which accrues to the astute investor for his own services in seeking out the best investment bargain.[5]

An attempt is made here to arrive at some quantitative measurement of this second component of the total interest payment, the element of risk.[6]

In order to use bond yields as a measure of underlying risk, the risk element must be isolated from the reward-for-waiting and the wages-of-management components of the total interest payment. Since it is practically impossible to accomplish this separation directly, a method has been devised for isolating the *other two* components. The remainder approximates the payment for long-time risk; the degree to which this remainder measures risk depends, of course, primarily upon the extent to which the other two elements have been eliminated.

The balance of this article deals with the manner in which this elimination was attempted. The process might be described, for want of a better term, as an "equalization"[7] of these two factors among the various types of utilities. Briefly, the wages-of-management, or profit, component was equalized by selecting the very highest grade bonds in *all* industries studied. The investor's choice of these bonds involved the least managerial effort, and hence required the least compensation for this effort. Moreover, competition between the forces of supply and demand is most active in setting the market price of such bonds and, thus, temporary influences which enhance the profit possibilities of the investor are reduced to a minimum. The reward-for-waiting component was equalized by selecting that class of bonds in which the element of risk is practically negligible, and using the yield on such bonds as a base line from which to measure the differences in yield among the bonds of the other industries. This difference, or remainder, is then an indication of the degree of risk inherent in each of the industries compared. The method may be outlined as follows:

I. To Equalize the Reward-for-Waiting Component:
   1. The average yield of the highest grade municipal (city) bonds was used as a

[5] Alfred Marshall, (*Principles of Economics*, 8th ed., London Macmillan Co., 1927), p. 588, says: "The interest of which we speak when we say that interest is the earnings of capital simply, or the reward of waiting simply, is *Net* interest; but what commonly passes by the name of Interest, includes other elements besides this, and may be called Gross interest." In the marginal notes on the same page he adds in summary, "Gross interest includes some Insurance against risk, and also Earnings of Management."

However, so far as the conclusions of this study are concerned, it makes little difference whether Marshall's theory of interest, or some other theory, is accepted. The difference in risk among various industries has been measured from a common base, and the validity of these measurements does not hinge upon the acceptance of any particular explanation of interest.

[6] So far as the writer is aware, no similar attempt has been made, although the three-fold nature of interest has been long recognized and much discussed theoretically.

[7] More specifically "equalization," as used here, refers to the process of establishing a base level at which the wages-of-management and reward-for-waiting elements in the yields on the different issues were at a minimum and practically equivalent for all industries considered.

base line from which to measure yields of the various other groups because, next to government bonds, municipal bonds contain the smallest degree of risk.

II. To Equalize the Wages-of-Management Component:
1. The very highest grade bonds available in each class were selected for they have (a) wide marketability and (b) narrow range of price fluctuations, thus reducing the investor's possibility of making a profit or collecting a wage for his shrewdness.
2. Frequency of quotation is an indication of wide market activity, wherein the forces of supply and demand are given free play and economic friction is reduced to a minimum.
3. Large issues were chosen in preference to small ones for they are more representative.

III. To Insure Comparability of the Data:
1. The same bond issues were used throughout the entire period, so far as possible, and substitutions were made with the greatest care.
2. Issues of companies which were representative of the industry under which they were classified were selected.
   a. Issues of large companies were selected first;
   b. Issues of independent operating companies were preferred to issues of merged or subsidiary companies.
3. Underlying bonds secured by tangible property, such as first mortgage bonds or their equivalent, were used in preference to junior issues.

Not all these very desirable criteria were met by every issue finally selected. As in all statistical investigations, it was necessary to work with the most satisfactory raw material available, but it is believed a sufficient number of the above standards were approximated in enough cases to give validity to whatever conclusions may be drawn from this study.

I. Reward-for-Waiting Component Equalized.

Municipal (city) bonds of the highest grade were selected as a base from which to measure the difference in risk among the various public utility groups because, while some degree of risk is present even in the highest grade municipal bonds, it is very small.[8] If municipal bonds contain a smaller degree of risk than any other class except United States Government bonds,[9] then it follows, as a correlative principle of finance, that they also afford the smallest possibility of profit to the investor. In other words, the wage-of-management or profit element is reduced to a minimum, especially if the *very highest* grade municipal bonds are considered.[10]

[8] Chamberlain and Edwards, *The Principles of Bond Investment.* Rev. and Enlarged Ed. (New York: Henry Holt and Co., 1927) p. 257, state: "Finally, there can be no greater assurance of good faith given investors in municipal bonds than the simple statement (for which we have authoritative support) that *no American municipality of any importance has defaulted in recent years* on the principal or interest of any of its obligations. This statement was made sixteen years ago in the first edition of this book (1911) and it still holds." Further, on page 264, appears the following: "American municipal bonds are the best security for the American people to buy."

[9] United States Government bonds were found to be unsuitable as a base line because (1) Liberty bonds, which most closely resemble municipal bonds in yield, demand, supply, and influence of market conditions upon them, do not go back to 1909, and (2) other classes of long-term United States Government bonds are affected largely by the restricted supply and the specialized demand for some issues by National Banks as security for their note issues.

[10] The special problems involved in selecting and obtaining an average of the highest-grade municipal (city) bond issues available will be discussed in the second article along with the special problems met in selecting the individual issues of each of the other groups. For the present it may be stated that the municipal group includes issues of 11 of the largest cities located in the Eastern and Middle Western part of the United States (See Table III). These issues are in active demand by investors and enjoy wide marketability, and thus allow the forces of supply and demand to find their freest expression and so reduce the return to the investor for his wages-of-management or profit. If the investor is seeking safety, he knowingly foregoes some wages or profit as part of his investment income in return for the added security of his principal.

After the factors of risk and profit are removed from the yield on the highest grade municipal bonds, what remains is something which approximates the lowest rate at which it is possible for any one to borrow money in the market. This rate may be thought of as something akin to so-called "net" or "pure" interest, or, as Marshall expressed it, "the earnings of capital simply, or the reward of waiting simply."[11]

The bed-rock of "pure" interest probably was not reached in the present investigation; at best, it was perhaps only approximated. However, an economic "bench-mark" has been established which can be used as a base for measuring the major portion of risk and profit in the bond yields of other industrial groups.

II. Wages-of-Management Component Equalized.

1. *Highest Grade Bonds Selected.* The *highest* grade bonds available in each utility industry were selected because competition between the forces of supply and demand is most active in influencing the value of such issues. This free interplay of supply and demand tends to reduce to a minimum the more or less short-time influences[12] which increase the wages-of-management and profit possibilities of the investor. Thus, fundamental, long-time differences in industrial risk are most accurately measured when the yields of high-grade bond issues are compared. Of course, short-time influences cannot be eliminated entirely and their effect on the particular industries concerned will be discussed in the second article.

The highest grade bond of each company in a representative list was chosen, if it measured up to the other criteria of selection set up.

A bond was considered as "highest grade" on the basis of *Moody's* ratings, and these were checked with *Fitch's Bond Book*. These ratings were compiled for three different years during the period studied—the first year for which ratings were available (1909 for steam railroads, 1914 for public utilities, and 1918 for municipals), a recent year (1927), and an intermediate year (1920). The year 1920 was chosen as the intermediate year because in that year bond

[11] *Op. cit.*, n. 5.

[12] For example, a dull bond market, shifting price level, and cyclical fluctuations in general business conditions.

TABLE I. CLASSIFICATION OF MOODY'S BOND RATINGS

	Number of Issues	1914*						1920§						1927‖					
		Aaa	Aa	A	Baa	Ba	B	Aaa	Aa	A	Baa	Ba	B	Aaa	Aa	A	Baa	Ba	B
Municipals (1918)†	11	11	....	....	....	....	....	11	....	....	....	....	....	11	....	....	....	....	....
Steam Railroads (1909)‡	10	10	....	....	....	....	....	10	....	....	....	....	....	10	....	....	....	....	....
Electric Light and Power	5	2	1	2	....	....	....	3	1	1	....	....	....	5	....	....	....	....	....
Telephone and Telegraph	5	1	3	1	....	....	....	2	2	1	....	....	....	4	1	....	....	....	....
Gas and Electricity	5	....	2	2	1	....	....	....	3	2	....	....	....	3	2	....	....	....	....
Electric Railways	7	3	2	2	....	....	....	2	2	2	1	....	....	1	3	3	....	....	....
Gas	5	3	....	2	....	....	....	....	1	2	2	....	....	....	3	2	....	....	....
Electric Railways and Electric Light & Power	11	....	6	4	1	....	....	....	1	4	4	1	1	1	6	3	1	....	....
TOTAL	59	30	14	13	2	....	....	28	10	12	7	1	1	35	15	8	1	....	....

*First annual edition of Moody's *Public Utilities and Industrials.*
†First annual edition of Moody's *Governments and Municipals.*
‡First annual edition of Moody's *Railroads.* One issue began in 1912.
§It is worth noting that, in 1920, of the 9 bonds in the three "B" ratings, 6 were of the combined electric railways and electric light and power group, 2 of the gas group, and 1 of the electric railways group. These three industries were affected by the 1920 depression in prices more than any of the other industries—as will be seen by a glance at Table II or Chart I—and, naturally, this condition is reflected in the rating of even their highest-grade bonds.
‖A similar analysis (of Moody's ratings) for the year 1927 indicates that the 9 bonds in the two lowest ratings for 1927 were from the same industries as were the lowest bonds for 1920; viz: 4 combined electric railways and electric light and power, 3 electric railways, and 2 gas, but all 9 had advanced to higher ratings.

prices were at their lowest and bond yields at their highest. Also, in 1920 the "spread" between the bond yields of the different industries was greatest. Therefore, if a bond received a good rating in 1920, the most extreme year of the entire period, it was considered a high-grade bond. (See Table I.)

On the basis of these ratings the quality of the bonds has improved over the 20 years. While a change of any sort in the quality of issues is not desirable from a theoretical point of view, some changes are almost inevitable and, if a change has taken place and cannot be eliminated from the calculations, an improvement is preferable to deterioration.

However, too much should not be made of this analysis of the bond ratings so far as this study is concerned. These ratings were classified as a general indication of the quality of the issues used, and the fine shades of difference among the ratings should be thought of only as approximations.

2. *Market Activity of Issue.* Bonds were selected also on the basis of their market activity, i. e., frequency of sales. Very few issues were rejected on this ground for, as only high-grade bonds were chosen, they were in demand by conservative investors and monthly quotations were almost always given. In the few cases where no sale was listed, and even a "bid and ask" quotation was lacking, an interpolated price was used as a basis for computing the yield. This price was taken as the mid-point between the prices listed for the immediately preceding and immediately succeeding monthly quotations. If there were lapses for longer than one month, the same interpolated price was used for each of the missing months. Where quotations were given "on basis" (that is, directly in yield), the mid-point between the quoted yields was taken as the interpolated yield.

3. *Large Issues Preferred.* Small issues were avoided, for the greater the total market value of the issues included in a group the more representative they probably are of that group.[13] Further, the size of an issue, to some extent, is a general indication of the size of the company issuing it,[14] and the size and importance of the company has an appreciable effect on marketability of the issue, especially in time of financial stress.

III. Comparability of Data Maintained.

1. *Similar Issues Used.* Bond issues which were "seasoned" and for which quotations were given from 1909 to date were selected wherever possible, in order that comparable data might be maintained throughout the entire period of 20 years. However, such issues were not always available and other issues were substituted for the original ones from time to time.[15] For example, in a partic-

[13] No attempt was made to weight the group averages according to total market value of issues in the group (market price times number of shares outstanding), as was done in the Harvard index of bond yields, since the purpose here is to measure the underlying risk in various industries and not to construct a representative index of bond yields. (See W. Floyd Maxwell and Ada M. Matthews, "A Monthly Index of Bond Yields, 1919–1923," *The Review of Economic Statistics* (Harvard Economic Service) Prel. Vol. V, No. 3, 213–214, (July, 1923).

[14] This does not necessarily follow, since a large company sometimes markets a small issue.

[15] Bonds of long maturities were chosen in preference to those of short maturities in order that substitution of one issue for another, even though very carefully done, might be reduced to a minimum.

On the other hand, extremely long maturity dates were avoided. While yield is a function of rate, price, and number of years the bond has to run to maturity, still if the maturity date is too far distant (say 100 years from now) its effect on yield is too little, just as it is too great when the bond has a short time (say 10 years) to run.

A comparison of bonds of early and distant maturities indicates that short-time bonds have higher yields and wider fluctuations in yield than long-time bonds. (See "A Monthly Index of Bond Yields, 1919–1923." *Op. cit.*, pp. 216–217.)

(Footnote 15 continued on page 88)

ular case, the highest grade issue available was used until not less than 10 years previous to its maturity date when it was dropped and another issue, for the same city or company, whose yield most clearly resembled that of the one dropped, was substituted.[16] These substitutions were very carefully made and, so far as possible, uniformity in the data was maintained throughout the period studied. Indeed, if substitutions had not been made, the sample would have been much less representative than it is.[17]

Bond characteristics change. Even when the same bond is used during the entire period, there is no assurance that it is essentially the same in character though it may be the same in name.

First, the security behind issues varies. The security of a particular bond may be changed as a result of (a) an increase or decrease in the total amount outstanding; (b) an increase or decrease in value of the physical property because of changes in the land and plant values, failure to maintain the physical condition of the property, obsolescence and depreciation when coupled with failure to build up an adequate retirement reserve, and commission or court revaluation which may lower the rate-base on which a return is permitted, thereby reducing income and, consequently, lowering the number of times interest is earned. However, most of the contingencies mentioned under (b) are provided for under the terms of individual issues.[18]

(Continued from page 87)

Also a bond was dropped from the list at least 10 years before its maturity date since bonds tend to reach their par, or call price, at maturity. This effect of approaching maturity on price is, of course, reflected in yield, and where the maturity date was the dominating influence on yield the issue was eliminated since such changes in yield are not primarily the result of economic influences.

[16] In order to be sure that the substituted issue had practically the same yield as the issue dropped, yields of the two issues were overlapped for a period of about a year in most cases. Further, the yields of old and new issues were compared with the typical yield on all issues of that particular city or company for an overlapping period of a year or more.

Frequently almost all, and often all, issues of a municipality or company had exactly the same yield for a particular month or series of months, and tended to move in unison. This was especially true of the municipal group. Such a condition established a feeling of confidence in the final results for, even if a more refined technique had been used, substantially the same results probably would have been obtained.

A somewhat different method of joining one index to another, in order to form a continuous series, but for a different purpose, was followed by W. Floyd Maxwell and Ada M. Matthews, *op. cit.*, p. 215. In such cases, and using such careful methods, substitution was believed to be justified wherever used in the present study.

[17] The alternatives to substitution would have been less desirable than substitution with its admitted faults. Some of these alternatives are: (1) Using issues until a few years prior to their maturity dates; (2) dropping a city or company when an original issue matured, thereby decreasing the amount of the data from time to time; (3) using only those issues which ran for the entire period, which would have given such few issues in many cases as to make it doubtful if the resulting averages were representative.

[18] In this connection, Professor Macaulay, in his study of railroad bond yields points out that, " . . . the whole concept of an index number showing the yield year by year of long-term loans of an unchanging character is somewhat vague not only from a statistical standpoint but also from the standpoint of economic theory. For what kind of a railroad bond in 1880 would the yield be strictly comparable with the yield of the very highest grade of railroad bond at the present time? We might, in 1880, have had quotations for a bond which, because of its issuing road and position among the securities of that road, could be considered absolutely secure in any but a metaphysical sense. However, this would not solve such a problem as that arising from the relation of the amount of such type of bonds outstanding in 1880 compared with the demand for that particular type of bond in 1880, to the same consideration at the present time. For example, we might consider Liberty Bonds as absolutely secure at the present time, but if, as seems not unlikely, the amount of such bonds outstanding declines radically in the next ten years, their position in the general bond market will certainly be changed. Though it would be difficult to say that their security would be appreciably greater than at the present time, they would undoubtedly sell on a lower yield basis with respect to the general mass of high-grade bonds than they do at the present time. The markets for bonds of different types are to a considerable extent quite different markets." (Fred R. Macaulay, "The Construction of an Index Number of Bond Yields in the United States, 1859–1926," 21 *Journal American Statistical Association* 28 (March, 1926).

Second, mergers affect security. A bond starting out in 1909 as an underlying issue of an independent company may have had a restricted market and only average security behind it. By 1927, because of increasing integration of the industry which it was chosen to represent, the original company may have become part of a consolidated group of operating companies which, in turn, are under the management of a holding or investment company. As such, the market for the bond of the original independent company has been widened and the security back of it strengthened, other things remaining equal.

This process of consolidation conceivably may result in the bond of, say, a gas company becoming an underlying issue of a combined gas and electricity company, in which the electricity business is dominant, and, in some cases, of this combined gas and electricity company guaranteeing the interest and even the principal of the underlying gas bond issue. This condition may occur too where a holding company, with a wide variety of utilities under its management, takes over an operating gas company and guarantees interest and principal on the gas bonds which may have become underlying issues.

Care was exercised in avoiding such pitfalls, for such guaranteed bonds have back of them not only the credit of the industry which they originally represented but of the guaranteeing industry or industries as well.

Third, general economic shifts occur. The financial security or stability of an entire industry compared with another industry may be affected by new inventions and slow economic changes. For example, the credit of the electric railway industry was undoubtedly more secure before the advent of the automobile and hard-road development than it is today.

Fourth, fashions in securities vary. The element of fashion in security investments is reflected in the ease and price at which an industry can secure capital. Railroad bonds may be a popular class of investment for a time and then the favor of the investing public may shift in succession to oils, motors, and public utilities, or entirely from bonds to common stocks. This shift may be a belated recognition by investors of the improved credit standing of the favored industry or type of security. While intangible, this element of the popularity of certain types of securities at different periods is, none the less, a real factor which is taken into consideration by investment bankers in choosing issues they will put on the market and, of course, is also reflected in the yield of issues already on the market.

Changes of this sort in the fundamental credit standing of an industry over a period of time are brought out by this investigation. It would not be desirable to eliminate such shifts in the basic character of the industries studied, even though such long-time intangible economic changes were possible of accurate statistical measurement.

2. *Bonds of Representative Companies Selected.* Bonds were chosen from companies which are representative of the industry under which they are classified. As a starting point, it was assumed that if bond issues of the larger companies were used they would be more representative of the industry in general. Thus, in choosing municipal bonds, the largest cities of the United States were listed in the order of their size until a sufficient number of satisfactory bond issues was secured. Later the least desirable issues were discarded. Also in the case of municipal bonds, another reason for choosing the largest cities was that their bond issues are well known and thus enjoy a wider marketability.

For the various groups of utilities, the companies which serve the largest cities in the United States were considered until a sufficiently representative group of bond issues was obtained for each type of utility service, keeping in mind, however, the tests of a high-grade bond issue summarized above.[19]

Bond issues of independent operating companies were used wherever possible in order to retain uniformity in the data over the period.[20] This criterion was satisfied in practically all cases, but sometimes it was impossible to find independent companies large enough to be considered representative of the industry, or, if such companies could be found, to secure a sufficient number with high-grade bond issues large enough in size to be significant.

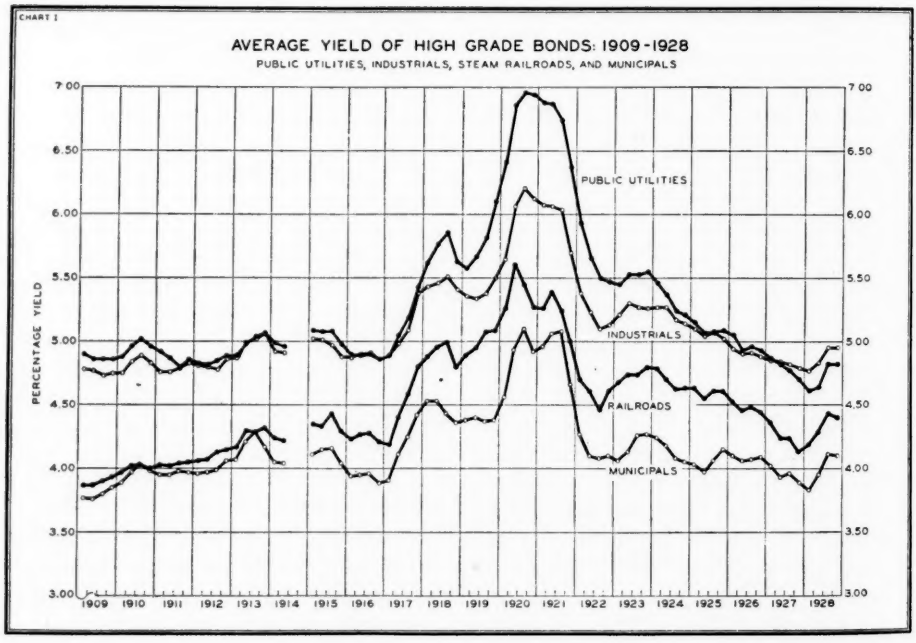
3. *Underlying Issues Preferred.* Underlying issues were chosen in preference to junior issues. Here, again, this standard was met in most but not in all cases because of the rapid development of the industries studied as well as the increasing degree to which consolidation of companies has taken place, as discussed above.[21]

In general, the underlying issues enjoy a higher rating than the junior issues, as they usually represent prior liens on the physical plant, so this element is to some extent automatically taken into account in choosing the issues with the highest ratings. However, if a refunding, or junior, issue received the same high rating as an underlying issue of the same company, and if there were few underlying issues all small in size, and if the refunding issue met the other tests of a high-grade bond better than the underlying issue, the use of the refunding issue was considered preferable.

[19] Further details of this process of selection will be given in the second article.

[20] See *supra*, p. 89

[21] *Ibid.*



Conclusion

The purpose of this study is to measure and compare the long-time risk in various public service industries. Chart I and Table II indicate (1) that the general movement of the yield on high-grade bonds of *all* industries taken together is very much the same, and (2) when these industries are separated into their respective major types,[22] each industry *as a class* tends to move in one direction, but *on a different level* than the others.[23]

In other words, when the highest grade bonds of each industry are compared, *the degree of excellence of these bonds differs as between industries much more than it does as between individual businesses or sub-groups within the same large industry*. For example, the yield on a high-grade bond of an individual electric light and power company tends to be more like the average for the electric light and power group and this group like the average for all utility groups combined than either is like the average for the municipals or steam railroads.

May not this difference in levels indicate, if not actually measure, the difference in the degree of long-time risk inherent in these important public service industries and thus serve as a barometer of changes in their credit standing over a period of years? The answer will be developed in the second article.

[22] Municipals, railroads, industrials, and utilities.

[23] "The factors influencing the general movement of high-grade bonds of any *class* are of a monetary, credit, financial, or general business nature, rather than factors connected primarily with changes in the credit or other characteristics of the *particular* business issuing the bonds." Italics are the present writer's. (From Fred R. Macaulay, *op. cit.*, p. 28.)

Individual Bond Issues Used in Computing Group Yields

Municipals* (Figures in parentheses represent the period used).
Chicago—General Corp. 4s 1918–1925 (1909–1912); 4s 1918–1931 (1912–1919); 4s 1937–1939 (1920–1927).
Baltimore—Park 4s 1955 (1909–1911); 4s March 1, 1961 (1912–1913); 4s Aug. 1961 (1913–1927).
Boston—4s July 1936 (1909–1914); Subway 4s 1957 (1915–1927)
St. Louis—Insane Asylum 4s 1928 (1909); Public Building 4s 1929 (1910–1914); Bridge Comp. 4½s 1935 (1915–1927).
Newark—3½s 1929 (1909–1913); 4½s Feb. 1, 1944 (1914–1927).
Buffalo—Water 3½s 1905–1935 (1909); 4s 1910–1939 (1910); 4s June 15, 1960 (1911–1927).
New York—4s Nov. 1958 (1909–1927).
Cleveland—Park 4s 1929 (1909–1911); Clark Av. Bridge 4-¼s 1931–1942 (1912–1914); 4½s March 1949 (1914–1927).
Philadelphia—4s July 1938 (1909–1910); 4s July 1940 (1911–1915); 4s Jan. 1945 (1916); 4s Nov. 1, 1966 (1917–1927).
Pittsburgh—4½s 1918–1938 (1909–1910); 4½s 1918–1940 (1911–1914); 4½s 1915–1950 (1914–1915); 4½s 1916–1950; (1916–1921); 4s 1923–1939 (1922–1927).
Milwaukee—Viaduct 4s 1918–1926 (1909–1912); Water Works 4-½s 1918–1933 (1912–1915); Park 4½s 1918–1935 (1916–1919); 5s 1920–1939 (1919–1923); 5s 1925–1940 (1924–1927).

Steam Railroads
*‡ A. T. & S. F., General Mortgage 4s, Oct. 1, 1995
‡ Cent. RR. of N. J., General Mortgage 5s, July 1, 1987
† C. B. & Q., 1st Mort. (Ill. Div.) 3½s, July 1, 1949
‡ C. & N. W., General Mortgage 3½s, Nov. 1, 1987
‡ Gt. Nor., 1st & Ref. 4½s, July 1, 1961
Morris & Essex, 1st & Ref. 3½s, Dec. 1, 2000
*‡ N. Y. C. & H. R., Ref. 3½s, July 1, 1997
*‡ Norfolk & West., 1st Con. 4s, Oct. 1, 1996
*‡ Nor. Pac. Prior Lien 4s, Jan. 1, 1997
† Un. Pac. Land Grant & 1st Mort. 4s, July 1, 1947
* Also used in Standard Statistics group of 15 railroad bond yields and Harvard revised index of 10 (1919–23, *op cit.*).
† C. B. & Q. Gen. 4s, 1958 used in Standard Statistics group of 15; Un. Pac. 1st & Ref. 4s 2008 used in Standard Statistics group of 15 and Harvard's revised group of 10.
‡ Also used in Harvard's revised group of 10.

Industrials* (Taken from Standard Statistics).
Am. Smelt. & Ref. 5s, 1947
Atl. Ref. Co. Deb. 5s, 1937
Baldwin Locomo. Works 1st S. F. 5s, 1940
Beth. Stl. Co. P. M. 6s, 1998
Bush Terminal 1st 4s, 1952
Ind. Steel 1st 5s, 1952
Lig. & My. Tobacco Co. Deb. 5s, 1951
Lorillard (P.) Co. Deb. 5s, 1951
Natl. Tube 1st 5s, 1952
N. Y. Dock 1st 4s, 1951
Pocohontas Cons. Coll. Co. 1st S. F. 5s, 1957
Tenn. Coal I. & R. R. Co. Gen. S. F. 5s, 1951
U. S. Rub. 1st & Ref. Ser. "A" 5s, 1947
U. S. Steel 50-Yr. 5s, 1951
West. Electric Deb. 5s, 1944

Telephone and Telegraph
Am. Tel. & Tel. Coll. Trust 4s, July 1, 1929 (1909–1916)
Am. Tel. & Tel. Coll. Trust 5s, 1946, (1916–1927)
Pac. Tel. & T. Coll. Trust 5s, 1937
N. Y. Tel. Co. 1st & Gen. 4½s, 1939
West. Union Telegraph Co. 4½s, 1950
West. Union Telegraph Co. Coll. Trust 5s, 1938

Electric Light and Power
Commonwealth Edison Company 1st 5s, June 1, 1943
Detroit Edis. 1st 5s, Jan. 1, 1933
King's County El. L. & P. 1st 5s, Oct, 1, 1937
N. Y. G. E. L. H. & P. 1st 5s, Dec. 1, 1948
Unit. Elec. Co. of N. J. 1st 4s, June 1, 1949

Electricity and Gas
Calif. G. & Elec. Corp., Uni. & Ref. 5s, Nov. 1, 1937
Cons. Gas of Balt. Gen. 4½s, April 1, 1954
Denv. Gas & El. Gen (now firsts) 5s, May 1, 1949
Paterson & Passaic Gas & Elec. Co. (N. J.), 5s, March 1, 1949
Utica G. & El., Ref. & Ext. 5s, July 1, 1957

Gas
Brk. Un. Gas Co., 1st Cons. 5s, May 1, 1945
Laclede Gas Lt. Co., Ref. & Ext. 5s, April 1, 1934
People's G. L. & Coke Co. 1st Cons. 6s, April 1, 1943
Portland Gas & Coke Co., 1st 5s, Jan. 1, 1940 (1910–1928)
Wash'n. G. L. Co., Gen. 5s, Nov. 1, 1960 (1911–1928)

Electric Railways and Electric Light and Power
Birmingham Ry. & L. Co. 1st & Ref. 4½s, Jan. 1, 1951
Charleston Cons. Ry. G. & El., Cons. 5s, March 1, 1999
Conn. Ry. & L. Co. 1st & Ref. 4½s, Jan. 1, 1951
Georgia Ry. & Electric Co., Ref. & Imp. 5s, Jan. 1, 1949
Milwaukee Elec. Ry. & L. Co.
Ref. & Ext. 4½s, Jan. 1, 1931 (1909–1911)
Gen. & Ref. 5s, Series "A", Dec. 1, 1951 (1912–1928)
Nashville Ry. & Light Co., 1st Consol. 5s, July 1, 1953
Norf. Ry. & L. Co., 1st Consol. 5s, 1949
Roch. Ry. & L. Co., Consol. 5s, July 1, 1954.
Terre Haute Traction & L. Co., 1st Consol. 5s, May 1, 1944
Wash. Ry. & Elec. Co., Consol. 4s, Dec. 1, 1951

TABLE II. AVERAGE YIELD[a] OF HIGH-GRADE BONDS BY CLASSES

PERIOD	Municipals (10)[b]	Steam Railroads (10)	Industrials (15)[c]	All Utilities (31)[d]	Telephone and Telegraph	Electric Light and Power (5)	Electricity and Gas (5)	Gas (5)	Electric Railways and Electric Light and Power (6)[e]	Electric Railways (5)[f]
The year 1909	3.79	3.89	4.76	4.87	4.84	4.98	5.05	4.77	4.98	4.58
First Quarter	3.77	3.87	4.78	4.90	4.91	5.03	5.07	4.77	5.00	4.62
Second Quarter	3.76	3.87	4.77	4.86	4.81	5.00	5.07	4.74	4.96	4.59
Third Quarter	3.80	3.90	4.73	4.86	4.86	4.95	5.03	4.79	4.98	4.53
Fourth Quarter	3.85	3.93	4.75	4.86	4.80	4.95	5.05	4.78	4.99	4.60
The Year 1910	3.97	4.00	4.83	4.95	4.88	5.01	5.17	4.90	5.06	4.68
First Quarter	3.89	3.97	4.75	4.88	4.81	4.95	5.12	4.80	5.00	4.59
Second Quarter	3.97	4.02	4.84	4.96	4.90	5.00	5.17	4.87	5.07	4.72
Third Quarter	4.03	4.03	4.89	5.02	4.96	5.09	5.25	5.01	5.10	4.72
Fourth Quarter	3.98	4.00	4.83	4.96	4.86	5.02	5.16	4.93	5.08	4.68
The Year 1911	3.96	4.03	4.78	4.86	4.81	4.93	5.08	4.81	5.00	4.62
First Quarter	3.95	4.03	4.76	4.92	4.87	4.99	5.15	4.84	5.05	4.63
Second Quarter	3.95	4.02	4.76	4.87	4.80	4.92	5.06	4.79	5.01	4.61
Third Quarter	3.98	4.04	4.79	4.80	4.79	4.92	5.06	4.79	4.96	4.60
Fourth Quarter	3.97	4.05	4.83	4.86	4.80	4.90	5.06	4.81	4.98	4.63
The Year 1912	3.99	4.10	4.81	4.85	4.78	4.87	5.02	4.79	4.99	4.62
First Quarter	3.96	4.06	4.81	4.83	4.73	4.90	5.00	4.78	4.97	4.59
Second Quarter	3.97	4.07	4.80	4.82	4.75	4.86	4.97	4.77	4.97	4.60
Third Quarter	3.99	4.13	4.78	4.85	4.79	4.85	5.03	4.78	4.99	4.63
Fourth Quarter	4.06	4.15	4.86	4.89	4.87	4.87	5.07	4.82	5.02	4.66
The Year 1913	4.18	4.27	4.99	4.99	5.03	4.93	5.17	4.94	5.11	4.78
First Quarter	4.07	4.17	4.87	4.89	4.90	4.86	5.08	4.81	5.03	4.68
Second Quarter	4.21	4.30	4.99	4.98	5.03	4.95	5.14	4.90	5.09	4.79
Third Quarter	4.29	4.29	5.02	5.04	5.05	4.96	5.23	5.00	5.14	4.83
Fourth Quarter	4.17	4.32	5.06	5.07	5.14	4.97	5.23	5.04	5.18	4.84
The Year 1914	4.04	4.23	4.93	4.97	5.03	4.87	5.16	4.92	5.12	4.73
First Quarter	4.05	4.24	4.92	4.99	5.05	4.89	5.15	4.94	5.12	4.74
Second Quarter	4.04	4.22	4.91	4.96	5.01	4.85	5.18	4.90	5.12	4.72
Third Quarter	....	....	4.94 July	....	....	....	....	....	....	....
Fourth Quarter	....	....	5.03 Dec.	....	....	....	....	....	....	....
The Year 1915	4.11	4.35	4.97	5.06	5.05	4.98	5.20	4.97	5.24	4.89
First Quarter	4.11	4.35	5.02	5.09	5.12	5.08	5.27	5.00	5.22	4.83
Second Quarter	4.15	4.33	5.01	5.08	5.08	5.08	5.21	4.96	5.23	4.89
Third Quarter	4.16	4.43	4.97	5.08	5.10	4.91	5.20	4.97	5.27	5.01
Fourth Quarter	4.04	4.29	4.88	4.98	4.92	4.86	5.11	4.94	5.23	4.84
The Year 1916	3.93	4.25	4.89	4.89	4.81	4.78	4.98	4.86	5.10	4.78
First Quarter	3.94	4.23	4.87	4.90	4.81	4.79	5.00	4.86	5.15	4.78
Second Quarter	3.95	4.27	4.90	4.89	4.83	4.79	4.98	4.85	5.12	4.79
Third Quarter	3.96	4.28	4.91	4.90	4.84	4.79	4.99	4.86	5.10	4.79
Fourth Quarter	3.89	4.21	4.86	4.86	4.78	4.75	4.95	4.87	5.04	4.76
The Year 1917	4.17	4.50	5.09	5.14	5.09	5.08	5.13	5.24	5.28	5.00
First Quarter	3.91	4.19	4.89	4.89	4.81	4.79	4.92	4.95	5.08	4.77
Second Quarter	4.11	4.41	4.98	5.05	4.99	5.01	5.07	5.13	5.21	4.89
Third Quarter	4.25	4.59	5.09	5.19	5.15	5.09	5.17	5.30	5.33	5.09
Fourth Quarter	4.42	4.80	5.38	5.43	5.42	5.45	5.35	5.58	5.51	5.24
The Year 1918	4.46	4.91	5.45	5.72	5.65	5.84	5.61	5.84	5.79	5.58
First Quarter	4.53	4.88	5.43	5.62	5.60	5.85	5.48	5.75	5.66	5.39
Second Quarter	4.53	4.96	5.46	5.77	5.67	5.85	5.64	5.97	5.78	5.68
Third Quarter	4.41	5.00	5.51	5.86	5.85	5.97	5.74	5.96	5.91	5.75

Fourth Quarter	4.25	4.59	5.09	5.19	5.15	5.09	5.17	5.30	5.33	5.09
	4.42	4.80	5.38	5.43	5.42	5.45	5.35	5.58	5.51	5.24
The Year 1918	4.46	4.91	5.45	5.72	5.65	5.84	5.61	5.84	5.79	5.58
First Quarter	4.53	4.88	5.43	5.62	5.60	5.85	5.48	5.75	5.66	5.39
Second Quarter	4.53	4.96	5.46	5.77	5.67	5.85	5.64	5.97	5.78	5.68
Third Quarter	4.43	5.00	5.51	5.86	5.85	5.97	5.74	5.96	5.91	5.75
Fourth Quarter	4.36	4.80	5.41	5.63	5.48	5.69	5.58	5.71	5.83	5.51
The Year 1919	4.38	5.00	5.40	5.79	5.70	5.81	5.66	5.85	6.01	5.71
First Quarter	4.38	4.90	5.36	5.58	5.46	5.62	5.50	5.57	5.76	5.56
Second Quarter	4.40	4.95	5.34	5.67	5.55	5.68	5.55	5.71	5.88	5.66
Third Quarter	4.37	5.08	5.38	5.82	5.75	5.89	5.69	5.87	6.06	5.65
Fourth Quarter	4.38	5.09	5.50	6.10	6.05	6.06	5.90	6.27	6.36	5.96
The Year 1920	4.88	5.40	6.01	6.79	6.66	6.61	6.45	7.12	7.16	6.73
First Quarter	4.56	5.26	5.65	6.41	6.36	6.24	6.07	6.69	6.70	6.41
Second Quarter	4.93	5.61	6.06	6.86	6.86	6.63	6.40	7.21	7.24	6.81
Third Quarter	5.10	5.45	6.20	6.96	6.84	6.89	6.61	7.36	7.44	6.58
Fourth Quarter	4.92	5.27	6.12	6.94	6.60	6.68	6.74	7.23	7.28	7.12
The Year 1921	4.94	5.22	5.96	6.71	6.30	6.43	6.49	6.95	7.27	6.84
First Quarter	4.96	5.26	6.07	6.88	6.61	6.51	6.61	7.29	7.29	6.97
Second Quarter	5.06	5.40	6.06	6.87	6.50	6.53	6.58	7.20	7.47	6.94
Third Quarter	5.08	5.24	6.03	6.74	6.28	6.55	6.56	6.96	7.26	6.84
Fourth Quarter	4.66	4.99	5.70	6.37	5.83	6.14	6.23	6.35	7.07	6.60
The Year 1922	4.14	4.59	5.21	5.64	5.29	5.48	5.55	5.66	6.06	5.80
First Quarter	4.27	4.70	5.38	5.93	5.48	5.76	5.76	6.03	6.45	6.12
Second Quarter	4.10	4.61	5.22	5.66	5.29	5.51	5.57	5.64	6.10	5.83
Third Quarter	4.08	4.46	5.10	5.50	5.13	5.40	5.43	5.51	5.90	5.64
Fourth Quarter	4.10	4.61	5.13	5.47	5.26	5.26	5.43	5.47	5.80	5.60
The Year 1923	4.18	4.74	5.26	5.51	5.18	5.18	5.45	5.58	6.00	5.69
First Quarter	4.06	4.68	5.21	5.45	5.16	5.20	5.38	5.46	5.85	5.66
Second Quarter	4.13	4.74	5.30	5.53	5.23	5.25	5.50	5.60	5.96	5.66
Third Quarter	4.26	4.74	5.27	5.53	5.16	5.15	5.48	5.64	6.04	5.70
Fourth Quarter	4.27	4.80	5.26	5.55	5.19	5.14	5.44	5.64	6.14	5.73
The Year 1924	4.13	4.68	5.21	5.32	5.03	5.05	5.23	5.36	5.72	5.54
First Quarter	4.24	4.79	5.27	5.46	5.17	6.10	5.34	5.52	5.91	5.70
Second Quarter	4.18	4.70	5.27	5.38	5.09	5.07	5.29	5.42	5.77	5.65
Third Quarter	4.08	4.62	5.17	5.24	4.94	4.98	5.19	5.28	5.64	5.41
Fourth Quarter	4.05	4.63	5.14	5.21	4.91	5.04	5.10	5.23	5.57	5.41
The Year 1925	4.05	4.60	5.06	5.10	4.86	4.83	5.00	5.08	5.33	5.47
First Quarter	4.03	4.63	5.10	5.15	4.96	4.92	5.06	5.15	5.40	5.43
Second Quarter	3.97	4.55	5.04	5.07	4.83	4.83	4.96	5.06	5.32	5.43
Third Quarter	4.06	4.61	5.07	5.08	4.83	4.79	4.98	5.06	5.30	5.49
Fourth Quarter	4.15	4.61	5.02	5.09	4.82	4.78	5.00	5.06	5.32	5.53
The Year 1926	4.08	4.47	4.91	4.97	4.72	4.70	4.88	4.92	5.15	5.45
First Quarter	4.10	4.52	4.94	5.05	4.76	4.75	5.00	4.96	5.27	5.54
Second Quarter	4.06	4.45	4.90	4.93	4.71	4.66	4.87	4.91	5.19	5.46
Third Quarter	4.07	4.48	4.91	4.96	4.72	4.72	4.85	4.92	5.10	5.43
Fourth Quarter	4.09	4.44	4.88	4.93	4.70	4.69	4.82	4.89	5.06	5.39
The Year 1927	3.95	4.24	4.83	4.79	4.51	4.53	4.72	4.76	4.95	5.27
First Quarter	4.02	4.36	4.85	4.87	4.62	4.60	4.79	4.83	5.03	5.32
Second Quarter	3.93	4.24	4.84	4.82	4.59	4.57	4.77	4.78	4.99	5.24
Third Quarter	3.96	4.24	4.82	4.77	4.44	4.51	4.70	4.75	4.97	5.27
Fourth Quarter	3.89	4.13	4.79	4.70	4.38	4.45	4.63	4.68	4.81	5.27
The Year 1928	4.00	4.33	4.88	4.72	4.54	4.41	4.59	4.68	4.80	5.32
First Quarter	3.83	4.19	4.77	4.61	4.37	4.30	4.53	4.58	4.73	5.14
Second Quarter	3.95	4.29	4.83	4.64	4.49	4.34	4.52	4.65	4.71	5.14
Third Quarter	4.11	4.43	4.95	4.82	4.71	4.51	4.66	4.74	4.85	5.47
Fourth Quarter	4.10	4.40	4.95	4.82	4.57	4.50	6.65	4.76	4.90	5.52

(a) Simple arithmetic averages were used in all computations. The monthly yields of each issue were averaged to obtain the quarterly yield of the issue. From these individual quarterly averages were computed the group quarterly averages. The group quarterly averages were used to obtain the group annual averages.
(b) The lowest 10 of a group of 11 bond yields.
(c) Source: Standard Trade and Securities Service, *Biennial Statistics Bulletin*, 1928, p. 14, and subsequent supplements. Figures taken as published without analysis or change. See page 91 *supra* for issues.
(d) A simple average of 6 utility group averages.
(e) Average of middle 6 out of 10 quarterly averages.
(f) Average of middle 5 out of 7 quarterly averages.

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

SUMMARIES OF RESEARCH

In this department are given brief accounts of investigations in progress and statements of tentative conclusions reached in the course of work by the staff of the Institute and others associated with the Institute's work.

COMMENTS ON LEGISLATION AND COURT DECISIONS

Here the readers of the JOURNAL will find a miscellany of summaries and interpretations of recent legislation, court decisions, and documents that have economic significance in land and public utility problems.

BOOK REVIEWS

This department contains critical reviews and brief notices of books in urban land economics and public utilities.

SUMMARIES OF RESEARCH

RECENT HISTORY OF THE CONTROL OF HOUSE RENTS

THE economic and legal aspects of the control of house rents have been discussed previously in the *Journal*.[1] Mr. Whitman pointed out that from a legal point of view rent regulation was justifiable only when emergency conditions prevailed.[2] An examination of court decisions revealed a uniform emphasis upon the acute shortage of housing space during the war and post-war period, resulting from a shifting of population to industrial and political centers along with a cessation of building activities.[3] Since the justification of rent legislation was found in emergency conditions, it might be readily assumed that an improvement in the housing situation would bring about a gradual removal of regulatory measures. The recent history of rent control bears out this generalization.[4]

The decision in the *Chastleton Corporation* v. *Sinclair* case[5] foreshadowed the decline of rent control in the District of Columbia. The United States Supreme Court upheld the Rent Commission order under consideration, thus affirming the constitutionality of the Ball Rent Law. This favorable position was taken by the court, solely because it was not prepared to say that the emergency in the District of Columbia had passed at the time when the order was issued (August 7, 1922), almost two years before the decision. According to Justice Holmes, who spoke for the Court, if the question in the case were one of whether the statute was in force at the time of the decision "upon the facts that we judicially know, we should be compelled to say that the law has ceased to operate."

This attitude, although dictum, was accepted by the Court of Appeals of the District of Columbia a few months later in the case of *Peck* v. *Fink*[6]. The question centered on an order issued by the Rent Commission on May 2, 1924 which was after the Chastleton opinion had been handed down. The Appellate Court, on the basis of this sequence of events, declared that despite the fact that "on May 17, 1924 Congress purported to continue legislation in force for still another year, there was no constitutional basis for the legislation; the Supreme Court having declared the emergency at an end upon facts judicially known to the Court."[7] This stand was apparently endorsed by the Federal Supreme Court when it denied a writ of certiorari to review the case.[8]

In view of these decisions the Ball Rent Law was wholly inoperative and rent control in the District of Columbia was at an end. An attempt to revive regulation failed when a measure advocated by President Coolidge and introduced into Congress on December 29, 1924 was lost in the legislative jam at the end of the session.[9]

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[1] Marcus Whitman, "The Public Control of House Rents," 1 *Journal of Land & Public Utility Economics*, 343-361 (July, 1925).

[2] *Ibid.*, p. 350.

[3] *Ibid.*, p. 347.

[4] This discussion is limited solely to events in the District of Columbia and the State of New York.

[5] 44 Sup. Ct. 405 (April 21, 1924).

[6] 2 F. (2d) 912, decided November 3, 1924.

[7] The Congressional legislation was an extension of the Ball Rent Law to May 25, 1925 (43 Statutes 120).

[8] 45 Sup. Ct. 197; 266 U. S. 631 (1925).

[9] S. 3764 and H. 11078, 68th Congress, 2nd session; see 66 *Congressional Record* 3146.

The process of decontrol in New York was far more gradual than that in the District of Columbia, and was brought about by legislative enactments. Freedom from rent regulation was accomplished by removing the application of the rent laws to certain rental groups or to certain cities, when extensions of the old laws were made. These changes were generally made in conformity with the recommendations of fact-finding committees.

The first extension of the old laws, occurring in 1922,[10] was for a period of two years upon a recommendation of the Joint Legislative Committee on Housing.[11] The committee pointed out that, "apart from any question of making good the shortage of the war years, the average yearly construction of residential houses and apartments judged by the standards of pre-war times, is still far below normal."[12] These conditions, while particularly true in the city of New York, fairly represented general conditions throughout the great cities of the country at that time.[13]

The next report of the Joint Legislative Committee describes a marked improvement in the supplying of housing space. The increase, however, had taken place in the higher priced apartments, and the Committee states that "there is an abundant supply of apartments renting at upwards of $20 a room, but still an alarming scarcity of new apartments renting for between $9 and $12 per room and of the cheaper apartments."[14] Another investigating body,[15] however, shortly thereafter found that despite some improvement, conditions did not warrant a lapse of the rent laws. It therefore recommended the extension of the existing emergency laws in all cities in which they applied, excepting in Rochester.[16] For this city, the data indicated a rapid approach toward a normal situation.[17]

As a result of conditions described in the findings of these Committees, there was a movement toward widening the application of the rent laws. The original Emergency Rent Laws, applying to cities of more than 175,000 population or cities in counties adjoining a city of this size, were made to apply in 1923 to the cities of Albany, Amsterdam, Cohoes, Rensselaer, Troy, Watervliet[18] and Schenectady.[19] Later, in 1924, the laws were made applicable to villages in a county having a population of 300,000 or more, and adjoining a city of a population of a million or more.[20] Although cities in the county of Monroe (containing Rochester) were exempted, in all other respects the laws governing rentals were extended for another two-year period, ending February 15, 1926.[21] This was the peak of the movement toward control, for in 1926 the process of decontrol began.

The extension of the rent laws by the State Assembly at the time of their expiration in 1926 was the occasion for the change in public policy. The old laws were extended for another year, but were restricted solely to the cities of Albany, Buffalo, Yonkers, and New

[10] Laws 1922, c. 663 extended to Feb. 15, 1924 the Emergency Rent Laws, which consisted chiefly of Laws 1920, C. 131, 132, 133, 134, 135, 136, 137, 138, 139, 209, 210.

[11] *Intermediate Report* of the Joint Legislative Committee on Housing, Leg. Doc. (1922), No. 60, Albany, N. Y.

[12] *Ibid.*, p. 34.

[13] *Ibid.*, p. 19.

[14] Leg. Doc. (1923), No. 48, *Final Report* of the Joint Legislative Committee on Housing, p. 15.

[15] *Report* of the Commission of Housing and Regional Planning, Albany, N. Y. December 22, 1923; Leg. Doc. (1924), No. 43.

[16] *Ibid.*, pp. 8, 9.

[17] *Ibid.*, pp. 63, 64.

[18] L. 1923, C. 278.

[19] L. 1923, C. 874.

[20] L. 1924, C. 629.

[21] L. 1924, C. 6.

York.[22] Furthermore, in New York, after May 31, 1926, the rent laws would no longer apply where the rentals were $20 or more per room per month.[23] In Albany, Buffalo, and Yonkers, this limit was placed somewhat lower, at $15 or more per room per month.[24] This legislation was in accord with recommendations of the Commission of Housing and Regional Planning,[25] which found that the increased margin of vacancies and mobility of tenants indicated an improvement in the housing situation. The height of the emergency had passed and a policy of gradual decontrol was advocated. However, a lapse of the regulation of rent would bear heavily upon one-half of the families in New York City, whose rent would necessarily be increased to the market level which was approximately 30% higher. Such an upward adjustment was recognized as inevitable and the Commission suggested that the remedy lay in a progressive housing program.[26] The apartments in this critical position were those renting for less than $20 per room per month in New York, and occupiers of these dwellings were therefore protected.

In 1927, the expiration of the rent laws again afforded an opportunity for modification of the statutes in response to changing conditions, which indicated a disappearance of the emergency.[27] The laws were made effective to June 1, 1928, and were restricted solely to the cities of New York and Buffalo, exempting apartments renting for $15 or more per room per month in the former city, and $7 or more in the latter.[28] New tenancies were also exempted from rent legislation.[29]

The improvement in the supply of housing space continued during the course of the next year to such an extent that the State Board of Housing recommended a complete lapse of the rent laws. The Board found that the temporary features of the existing maladjustment had disappeared and the public emergency, "in the meaning of the law, and on the basis of which the Rent Laws were sustained by the Courts, no longer exists." The housing situation of a great number of families living in sub-standard, unsanitary, and inadequate dwellings was, in the Board's opinion, not temporary, and did not arise as an emergency out of economic adjustments following the war.[30]

Despite the recitation of facts and strong attitude of the State Board of Housing, the legislature declared that in its opinion a public emergency existed "to a limited extent by reason of the fact that there is now a transition period in the cities of Buffalo and New York which itself is a public emergency requiring the force of such statutes."[31] The rent laws were therefore again extended in Buffalo and New York. The exempt rental class was lowered from $15 or more per room per month in New York to $10 or more, effective after November 10, 1928.[32] This extension

[22] L. 1926, C. 6, Sec. 1, effective to June 1, 1927

[23] *Ibid.*, Sec. 2. The date at which rentals were taken was December 31, 1925.

[24] *Ibid.*, Secs. 3, 4, 5.

[25] *Report* of the Commission of Housing and Regional Planning, December 23, 1925. Leg. Doc. (1926), No. 40, pp. 12–16

[26] The State Housing Law, L. 1926, C. 823, was passed in apparent response to this and similar demands. Designed to encourage improved housing, it provides for the regulation of rentals charged by "limited-dividend" housing corporations.

[27] *Report* of the State Board of Housing, Legislative Doc. (1927), No. 85, pp. 12–14.

[28] L. 1927, C. 568, Secs. 1, 2, 3.

[29] *Ibid.*, Sec. 4.

[30] *Report* of the State Board of Housing, Leg. Doc. (1928), No. 85, pp. 10–11.

[31] L. 1928, C. 826, Sec. 1.

[32] The opponents of rent control claim that this action was entirely political, inasmuch as the presidential and gubernatorial elections of 1928 were approaching. "So long as rent control remains a political issue members

(*Footnote 32 continued on page 98*)

was the last one made by the State Assembly and expired on June 1, 1929.

Thus, so far as the state was concerned, rent regulation has ceased.[33] However, the Municipal Assembly of New York City enacted a local rent law, similar to the expired laws, which applied where rentals were $15 per room per month or less.[34] This rent law, the New York Supreme Court, in *Gennis* v. *Milano*[35] has declared invalid on the ground that in enacting the law, the City had exceeded powers conferred upon it by the City Home Rule Law. In the opinion of the Court, the rent law did not relate to "property, affairs and government" of the city. The law also interfered with contract rights and statutory remedies and procedures which had been provided by the Legislature for the entire state. Whether the rent law was justified by the conditions in the housing industry was not considered.

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(*Continued from page 97*)

of political parties will find it advantageous to play up to the interests of a vast constituency represented by the millions of tenants who rent apartments in New York City." See "A Permanent Emergency," *Housing*, Vol. 17, No. 2, June, 1928, pp. 104-106.

[33] *Report* of the State Board of Housing, Leg. Doc. (1929), No. 95, reaffirmed the position taken in 1928 as to the lack of an emergency to justify the laws, p. 12.

[34] This law expires May 1, 1930. Act of June 13, 1929.

[35] 237 N. Y. S. 432 (November 19, 1929).

COST OF RAILWAY CAPITAL[1]

THE cost of railway capital was consistently and gradually downward from 1920 through the second quarter of 1928 (Table I). Minor fluctuations occurred in certain types of issues but the general trend was toward lower levels. The third quarter of 1928, however, marking the beginning of an unsatisfactory bond market, witnessed a reversal of the tendency. An improved borrowing position in the industry, as measured by increased earnings for the first half of 1929, failed to counterbalance the continued unsatisfactory condition in the bond market. As a result, the cost of capital continued on its upward movement during the first two quarters of 1929, with the average yield during the second quarter higher than the first. The cost of financing (Table II) for both bonds and equipment trust obligations was noticeably higher for the first quarter of 1929 than for the last quarter of 1928. But whereas the cost of equipment trust financing decreased in the second quarter of the year, the cost of bond financing (except when measured on the "difference in yield to maturity" basis) showed an increase. What effect the recent market crash had upon the cost of railway capital and the cost of railway financing is a question that must go unanswered until financing data for the last six months in 1929 are made available. We can but note here the movement of these costs during the tide of speculation which took the market to new heights.

Cost of Capital

From an operating standpoint the first half of 1929 was a successful one for the railroads, showing a definite improvement over the figures of the preced-

[1] See: Herbert B. Dorau, "The Cost of Railway Capital under the Transportation Act of 1920," 3 *Journal of Land and Public Utility Economics*, 1-20 (February, 1927); 3 *Ibid.*, 219-221 (May, 1927); 3 *Ibid.*, 427-430 (November, 1927); 4 *Ibid.*, 206-208 (May, 1928); 4 *Ibid.*, 427-428 (November, 1928); and 5 *Ibid.*, 203-204 (May, 1929).

ing year. Operating revenues for the six months ending June 30, 1929, increased 5.2% over the comparable 1928 figures. This increase, coupled with a decrease in the operating ratio from 75.8% to 73.3% resulted in an increase in net operating revenues of over 16%. Net railway operating income showed an increase of almost 22%.[2]

But conditions in the security market were not so satisfactory for borrowing. The lack of investor interest in fixed income securities, which was already pronounced in the middle of 1928, became even more evident as the speculative movement reached successive peaks, and as stock prices moved to higher levels in 1929.

The effect of an unfavorable bond market is seen in the increased cost of capital to the companies. The turning point is indicated by the increased cost of capital in the third quarter of 1928 when the weighted average yield rose from 4.72% in the second quarter to 5.05%. However, the comparatively greater volume of financing during the first half of the year pulled the yearly average down to 4.78%, the lowest for any year in the period. Thus, from 1920 to 1928, each year has witnessed a lower cost of capital than the preceding year. But with an average yield of 5.16% for the first six months' offerings in 1929, it seems probable that 1929 will be the first year of the decade to show an increased cost of capital.

The slight downward movement in the cost of capital for the first quarter of 1929, compared with the final quarter of 1928, was due to a decrease in the cost of

[2] These figures are for "Class I Railways and Large Switching and Terminal Companies." Taken from the Bureau of Railway Economics *Monthly Report Service No. 238*, June 1929.

TABLE I. RELATION OF COST OF FINANCING TO TOTAL COST OF CAPITAL AND TO RETURN EARNED ON INVESTMENT

	COST OF CAPITAL								RETURN EARNED ON	
	All Classes		Bonds		Equipment Trust		Miscellaneous			
	Cost of Financing*	Cost of Capital†	Cost of Financing*	Cost of Capital†	Cost of Financing*	Cost of Capital†	Cost of Financing*	Cost of Capital†	Investment	Stock
1920	.52	7.29	.50	7.34	.56	7.28	.....	7.01	.06	5.45
1921	.47	7.21	.50	7.23	.08	6.76	.39	7.64	2.96	3.94
1922	.29	5.86	.26	5.92	.35	5.71	.....	6.00	3.74	4.85
1923	.32	5.61	.16	5.38	.38	5.72	.67	6.45	4.56	6.95
1924	.24	5.54	.23	5.61	.08	5.27	.86	6.11	4.44	6.70
1925	.24	5.45	.21	5.63	.31	5.06	1.20	5.20	4.89	8.19
1926	.21	5.24	.18	5.36	.24	4.97	.54	5.26	5.15	9.43
1927	.16	5.06	.16	5.16	.10	4.61	.74	5.68	4.41	7.78
1928	.14	4.78	.13	4.77	.10	4.58	.65	5.25	.....	.....
1928										
1st. Q.	.14	4.73	.12	4.71	.09	4.37	.65	5.64	.....	.....
2nd Q.	.13	4.72	.13	4.75	.11	4.43	.....	4.71	.....	.....
3rd. Q.	.17	5.05	.17	5.10	.....	4.86	.....	5.67	.....	.....
4th Q.	.13	5.00	.14	4.95	.13	5.02	.....	5.84	.....	.....
1929										
1st Q.	.21	4.97	.22	4.95	.17	5.04	.....	5.46	.....	.....
2nd Q.	.16	5.26	.15	5.27	.15	5.18	.....	6.92	.....	.....
1st 6 Mos.	.18	5.16	.20	5.14	.15	5.16	.....	6.06	.....	.....
1920–1928	.26	5.57	.24	5.62	.25	5.38	.77	5.94	3.86‡	6.70‡

†Yield per dollar on securities for which price to the company is available.
*Difference between yield per dollar to maturity at price to the company, and at price paid by the investor.
‡1920-1927

capital raised by miscellaneous issues. The cost of equipment trust capital increased over the 1928 final quarter, while the cost of bond capital remained practically unchanged. The second quarter of 1929 showed an increase in the cost of each type of issue over the first quarter of that year. Comparing the various types of issues, the miscellaneous group showed the greatest increase in the second period; the cost of equipment trust capital increased the least. Bond capital increased somewhat more than equipment trust, but much less than the miscellaneous group.

Cost of Financing

Apparently there existed in the first half of 1929 a situation where bankers' margins were decreasing at a time when the cost of capital, for "All Classes" of securities, was increasing. The bankers' margins (Table II), measured in absolute amounts (y-o), and also expressed as a percentage of the amount received by the company ($\frac{z}{n}$), and as a percentage of the amount paid by the investor ($\frac{z}{x}$), for all issues as a group, was lower for the first six months of 1929 than for any prior year. It would further seem that the bankers' margins decreased from the first to the second quarters of 1929 when the cost of capital was increasing.

Examination will show that the apparently small bankers' margin for the entire group of securities, in the first half of 1929, was not due to a decrease in the margins paid on any specific type of security issue. Rather, it was caused

TABLE II. SUMMARY OF COST OF FINANCING EXPRESSED IN VARIOUS WAYS, BY YEARS AND FOR THE PERIOD, 1920-1929

Year	All Classes				Bonds				Equipment Trust Certificates				Miscellaneous			
	y-o	$\frac{z}{x}$	$\frac{z}{n}$	Yield Difference	y-o	$\frac{z}{x}$	$\frac{z}{n}$	Yield Difference	y-o	$\frac{z}{x}$	$\frac{z}{n}$	Yield Difference	y-o	$\frac{z}{x}$	$\frac{z}{n}$	Yield Difference
1920	3.66	3.66	3.80	.52	3.47	3.47	3.59	.50	3.98	3.97	4.13	.56	..	..	..	.....
1921	4.38	4.51	4.72	.47	4.54	4.68	4.91	.50	2.44	2.44	2.50	.08	2.68	2.78	2.86	.39
1922	3.25	3.36	3.48	.29	3.55	3.69	3.83	.26	2.28	2.30	2.35	.35	..	..	..	.....
1923	2.54	2.59	2.66	.32	2.65	2.74	2.82	.16	2.55	2.58	2.65	.38	1.51	1.52	1.55	.67
1924	2.67	2.73	2.80	.24	3.16	3.26	3.37	.23	1.86	1.88	1.91	.08	1.71	1.71	1.74	.86
1925	2.49	2.55	2.62	.24	2.74	2.82	2.90	.21	1.75	1.76	1.79	.31	4.75	4.80	5.04	1.20
1926	2.23	2.28	2.34	.21	2.62	2.69	2.77	.18	1.48	1.50	1.52	.24	1.00	1.01	1.02	.54
1927	2.39	2.46	2.53	.16	2.60	2.70	2.77	.16	.66	.66	.66	.10	2.00	2.02	2.06	.74
1928	2.17	2.22	2.27	.14	2.33	2.38	2.44	.13	.64	.64	.65	.10	1.75	1.76	1.79	.65
1928																
1st. Q.	2.02	2.05	2.10	.14	2.19	2.23	2.28	.12	.56	.56	.56	.09	1.75	1.76	1.79	.65
2nd. Q.	2.32	2.38	2.44	.13	2.47	2.54	2.60	.13	.67	.68	.68	.11	..	..	..	.....
3rd. Q.	3.00	3.06	3.16	.17	3.00	3.06	3.16	.17	..	..	..	.....	..	..	..	.....
4th Q.	2.16	2.20	2.25	.13	2.29	2.33	2.39	.14	.78	.64	.80	.13	..	..	..	.....
1929																
1st. Q.	2.25	2.32	2.38	.21	2.32	2.39	2.45	.22	1.02	1.04	1.05	.17	..	..	..	.....
2nd. Q.	1.58	1.60	1.63	.16	2.55	2.58	2.64	.15	.91	.93	.94	.15	..	..	..	.....
1st 6 Mos.	1.88	1.93	1.97	.18	2.40	2.45	2.51	.20	.92	.94	.95	.15	..	..	..	.....
1920–1928	2.75	2.82	2.90	.26	3.05	3.14	3.24	.24	1.98	2.00	2.04	.25	1.70	1.71	1.74	.77

y-o is the difference between average price per hundred received by the company and the average price per hundred paid by the investor.

$\frac{z}{x}$ Ratio of banker's share to the value of the issue or issues at the price at which the investor absorbed them.

$\frac{z}{n}$ Ratio of the banker's share to the actual dollars received by the company.

Yield difference—difference between yield per dollar to maturity at price to the company, and at price paid by the investor.

by an increase in the relative importance of issues with low margins (equipment trust obligations) and a decline in the importance of higher margin securities (bonds). As a result we have the paradoxical situation of bankers' margins on bonds and equipment trust obligations increasing in the first six months of 1929, *as compared with 1928*, while the margins for the group as a whole, "All Issues," were decreasing.

In this connection, it is true that the bankers' margins on equipment trust obligations, measured on all bases, did decrease from the first to the second quarters in 1929, when the Cost of Capital was increasing. And, the margins on bonds, except measured on a "yield difference" basis, increased during the same period. But it will be noted that the margins for "all issues," composed of bonds and equipment trust certificates, decreased much more, relatively, than did the margin on equipment trust certificates. This occurred at the same time that the other component of the total figure, namely bonds, showed an increase in margins. This apparently impossible situation is again accounted for by a change in the relative importance of the high and low margin issues. The 1929 second quarter bond total used in compiling these averages was about one-half of the first quarter total for this type of security; while the equipment trust certificates, the class of issue showing a decrease in margin, were fourteen and one-half times as important in the second quarter. As a result, the total showed a considerable decrease, a decrease which was larger than that of its component. The yield difference in bonds decreased from .22 to .15 from the first to the second quarters of 1929 while all other measures of bankers' margins increased. The yields are affected by the maturity of the issue. An increase in the average term of issue may decrease the "yield difference" cost per year even though the actual margin paid may increase.[3]

In spite of the decrease in bankers' margins on equipment trust issues the average margin for this class of issues in the six months of 1929 is still significantly above the 1927 and 1928 very low levels. The 1929 average for six months is well below any other than these two, in the period, and well under the average for the period as a whole. The increase in the margin on bonds was noticeable, but not sufficient to raise the average for the six months above any yearly average except that of 1928.

The general conclusion therefore seems warranted that the railroads, during the first half of 1929, were in a somewhat less favorable debt-financing position than in 1928. They were, however, in a much better position than the average for the period. A survey of the financial practices of the industry, from the point of view of noting the quantity of financing, and the type of securities used, in the light of the cost of capital and costs of financing, might prove of interest; particularly, when statistics bearing on the financing during the period immediately before and after the market crash become available.

ROY L. REIERSON

[3] Table II contains only those issues for which both the price to the company and the price to the investor were available. Care must be exercised in generalizing upon the basis of these figures since the number of issues included in some years is rather a small percentage of the total. The Cost of Capital in Table I is much more complete; the Cost of Financing in Table I corresponds to the "Yield Difference" in Table II.

COMMENTS ON LEGISLATION AND COURT DECISIONS

THE NASHVILLE STOCKYARDS CASE

The Packers and Stockyards Act of 1921 provides that all rates or charges for any stockyards' service furnished at a stockyard by a stockyard owner or market agency shall be just, reasonable and non-discriminatory. The Act makes the Secretary of Agriculture the regulatory authority.

On August 2, 1929, the Secretary made a finding of facts and issued an order in which he prescribed a schedule of reasonable rates to be charged by the Nashville Union Stock Yards Company. In this order he reviewed the facts of record and set forth the reasoning which guided him in arriving at what he considered reasonable rates.

The value of the property was found to be the present value of the land gauged by the value of surrounding land as determined by recent sales and other pertinent information; the cost of reproduction new of the sub- and superstructures, less depreciation; an amount necessary for working capital in the business; and interest on land value during construction. No specific sum was added for going concern value, but it was stated that the Secretary had valued the property as a going concern and had given due consideration to going concern value in arriving at the rate-base.

In the determination of the value for rate-making purposes, the value claimed by the Stock Yards Company to result from a railroad contract was eliminated. The Stock Yards Company maintained that value attached to an exclusive contract which it has with certain railroads, whereunder these roads obligated themselves to unload and load livestock in Nashville only at the stockyards.

The law requires that railroads unload into suitable pens all livestock carried to public stockyards in interstate commerce. The charge for the unloading service is included in the line-haul rate charged by the roads. The railroads do not themselves perform the actual unloading at Nashville but contract with the stockyard company to do it for them.

The Secretary held that the inclusion in the value of the stockyards property of an amount equal to the unexpired value of this contract claimed by the stockyards, and the inclusion in the stockyard rates of an amount sufficient to pay a return on the unexpired claimed value, would force railroad shippers of livestock to pay for the same service twice and allow the yards company to collect twice for performing it. Shippers would pay the railroads once for unloading their livestock and the stockyards again for having got a contract to unload it. The stockyards company would be paid once by the railroads on a per car basis for loading and unloading, and again by the shipper in increased stockyard rates because of the contract.

The Stock Yards Company claimed further that this exclusive unloading and loading contract makes it possible for the yards company to sell more feed and therefore to make more profit than would be possible but for the contract. The Secretary held that even if this be so, it results from an enforced good-will, and any value arising from it could not

be included in the value of the property for rate-making purposes.

As an aid in arriving at reasonable rates to be charged, the present rate of return marking the lower limit of the zone of reasonableness was found. This return was arrived at on the basis of facts of record and from opinion evidence. The rate so found was used as a point of departure or a benchmark to be used in arriving at a schedule of *reasonable* rates. Rate of return was used as a means to an end and not as an end, one factor in arriving at reasonable rates, and not the sole test of their reasonableness. With respect to rate of return the finding states:

"Under honest and efficient management and operation the Nashville Union Stock Yards, Inc., is entitled to charge rates for its services that will pay all reasonable operating expenses and produce in addition a net operating income equivalent to a reasonable rate of return on the fair value of the property devoted to stockyard service. This is but to say that the yard is entitled to receive for its services enough to pay reasonable expenses and yield a reasonable profit. The net operating income, or the ratio which it bears to the fair value of the stockyard, expressed as a percentage return, should be such that willing sellers may without financial sacrifice dispose of their interests in the yard to willing buyers. A net operating income or rate of return adequate to bring this about is sufficient to compensate the creditors and owners for the use of an amount of money equal to the present fair value of the stockyard property and for the varying amounts of risk assumed by each.

"For the purpose of rate-making, the stockyard is considered a going concern. As a going corporation, securities representing a well-balanced financial structure, tried, seasoned, and unencumbered by other risks than those inherent in the conduct of the business, and worth as much as the present fair value of the property, may be considered as already outstanding in the hands of the investing public. The yield or rate at which different classes of security holders are able to capitalize the income from various classes of securities held are factors to be considered in arriving at a fair and reasonable composite rate of return on the fair value of the property devoted to the public service, of which securities are merely representative. A rate schedule affording management an opportunity to produce from the volume of business handled a net operating income sufficient to pay reasonable interest and dividends on securities reasonably worth as much as the property, would enable the security holders to dispose of their evidence of interest in the property for what it is reasonably worth. Such rates would result neither in confiscation to the owners nor extortion to the users."

After finding that high-grade local bonds would sell so as to yield 6%, high-grade local preferred stock 7%, and that the highest grade common stocks were selling in the general market at some 20 times their current earnings, the Secretary concluded that rates which would have produced a return of 7½% in 1928 upon the value of the property as of that date would not have been confiscatory at that time. He said:

"Two financial structures are suggested by witnesses as appropriate for the stockyards company: One to consist of one-third bonds, one-third preferred stock, and one-third common stock; the other to consist of one-half bonds, one-fourth preferred stock, and one-fourth common stock. The above yields on bonds, preferred and common stocks applied against the two financial structures result as follows:

Fair appraised value represented by			Total fair appraised value
⅓ bonds	at 6%	=	2%
⅓ preferred stock	" 7%	=	2⅓%
⅓ common stock	" 10%	=	3⅓%
Composite return			7⅔%
or			
½ bonds	at 6%	=	3%
¼ preferred stock	" 7%	=	1¾%
¼ common stock	" 10%	=	2½%
Composite return			7 ¼%

"After giving due consideration to the opinions of the various witnesses as to what constitutes a reasonable rate of return and

to the facts upon which they base their opinions, it is my conclusion that a schedule of rates which would have produced in 1928 a return of 7½% on the value of the property as of that date would not have been confiscatory.

"From all the foregoing and upon a consideration of all the evidence in the record, and argument and brief of counsel, I find and conclude that a schedule of rates and charges which, when applied to volume and character of business reasonably to be anticipated in the immediate future, will produce a net operating income of not less than 7½% on $511,192, or $38,339.40, is *non-confiscatory*."

But he did not prescribe such rates; he prescribed higher ones with respect to which he stated:

"Had these rates been in effect in 1928, they would have produced a net operating income of $41,708. This is equivalent to 7½% of $556,107, which is approximately $45,000 more than the fair value heretofore found. This is an additional allowance to afford a margin to cover any errors or omissions in the determination of the fair value. These rates would have produced $1,536 more than was produced by the rates now in effect, and $3,369 more than would have been produced during the year by minimum non-confiscatory rates. Therefore, the return which would have been produced by this schedule of rates is well within the zone of reasonableness. Present reasonableness of a rate schedule is the first test of its probable future reasonableness. The record shows a decrease in the volume of livestock receipts at the yard from 1924 to 1927 and an increase in 1928 over 1927. It is the opinion of the general manager that there is not likely to be a further decline. A reasonably stable schedule will naturally produce varying rates of return on the fair value of the property, a lower return during years of light livestock receipts and a higher return during years of heavier receipts. It is not probable that a variation of livestock receipts in the near future will be such as to bring about a confiscatory return under the rates herein found to be reasonable."

It is apparent that in this case the Secretary of Agriculture addressed himself to rate-making and not to return-fixing. Reasonable rate of return became a rate-making factor and not a future average return which he hoped his rates would produce. Faced with the alternative of choosing between a fairly constant rate schedule, with an annual shifting rate of return, and an annual shifting schedule of rates and a constant or average rate of return, he chose the former. He prescribed rates which, in his judgment, would produce now a reasonable return, that is, something above 7½% on the value of the property now. Having prescribed a schedule of rates which he deemed reasonable at the present time, he satisfied himself from the evidence, so far as he was able, that the rates would remain reasonable during the immediate future. He deemed present reasonableness the first test of future reasonableness, and then took precaution to protect future reasonableness.

HOWARD DOUGLAS DOZIER.

BOOK REVIEWS

Simpson, Herbert D. THE TAX SITUATION IN ILLINOIS. *Chicago: The Institute for Research in Land Economics and Public Utilities, 1929. pp. 104. $1.50.* (Studies in Public Finance, Research Monograph No. 1.)

This monograph is the result of an investigation begun by Dr. Simpson in 1926. Its objective was an examination of the operation of tax administration in Illinois, with special reference to real estate. The facts for Chicago were gathered in cooperation with the Joint Commission on Real Estate Valuation, and for the remainder of the state with the assistance of the farm bureau and railway tax specialists. The method was that of testing the quality of real estate assessments by a comparison of the assessments with the price actually paid in a bona fide sale of the property. Following the analysis of the data thus compiled, Dr. Simpson discusses briefly some of the causes for the conditions found to exist, and some appropriate remedies.

The statistical material is clearly presented, and is graphically portrayed by some interesting and rather unusual inventions.

The conditions discovered appear to afford ample basis for Professor Ely's statement, in his introductory note, that Illinois has the worst assessment system for real property of any state in the United States. The 1923 assessment in Chicago as tested by 5,429 sales transactions, ranged from less than 1% to more than 100% of the value of the property. The average ratio of assessed to true value was about 35%, but there was a 40% deviation from uniformity. Such a variation, applied to clothing, would mean that one who should wear a size 15 collar, for example, would be fitted with either a size 21, draped over his shoulders; or a size 9, which would promptly produce death from strangulation. The people of Chicago have been paying taxes for years on property that is, on the average, either 40% over-assessed or 40% under-assessed. The disparity of assessment means that $30,000,000 of taxes have been collected annually from one group that should have been paid by another. "At its best this is a very poor form of socialism; at its worst, it is organized crime" (p. 12). Subsequent discussion indicates that the latter alternative would more accurately describe the situation.

The analysis of assessments in relation to sales data showed that the Illinois assessors have, except at one point, behaved and performed very much as do assessors everywhere, when left to themselves. That is, they have copied figures from one assessment to the next; they have failed to view the properties assessed; they have been guilty of all manner of favoritism; they have made the property tax heavily regressive, that is, small properties were assessed at a higher percentage of true value than large properties, thus imposing a higher rate of taxation on the small than on the large properties. The exception occurred in Chicago, where the large office and bank buildings of the loop district had a higher ratio of assessed to true value than any other property in the city. But small single-family residences were assessed at a greater ratio of their true value than large residences. Outside of Cook County regressive taxation was the rule. Small properties were assessed relatively higher than large ones, and rural property was assessed relatively higher than

urban property, in a period when rural property was declining in value and urban property was increasing rapidly in value.

These results are the natural fruit of unsupervised and uncontrolled local assessments. Illinois is not alone in this experience. The unique feature of the situation has been the degree to which the boards of review, which in Cook and East St. Louis Counties are virtually independent assessing bodies, have abused their power and position, for personal and partisan reasons, and have intensified the inequalities of the original assessment. Under-assessed property had the same chance of a reduced assessment on appeal as over-assessed property. A spirit of "tax-fixing" has become general, and with it a "hard boiled" cynicism regarding all fiscal matters. Residents of Chicago have probably not needed this incentive to cynicism toward government—but it is all of a piece with the promiscuous "racketeering," the defying of George III, and the general slump in the morale and the standards of public administration in that city.

Dr. Simpson's statement of the causes of this situation is fairly complete. Of greatest importance is the faulty tax administrative organization, with its absence of definite responsibility, its unscientific procedure and its inferior personnel. This study shows clearly that Illinois is reaping the harvest that was sown when the tax commission was created. That commission has never had adequate power; it has never had a personnel that commanded respect; it was pushed into a corner in the widely advertised reorganization of the state government. Consequently, it has never amounted to anything and it never will until the conditions are changed. Dr. Simpson could and should have been more emphatic in his handling of the way in which this ship was scuttled before leaving port.

He does propose a reorganization of the administrative system, including a tax commission of three rather than five members, a county assessor, a continuous assessment instead of the quadrennial assessment of real estate, and a reform of the tax system itself. He should have stressed more vigorously the importance of establishing the proper qualifications for the administrative personnel. This is especially necessary in Illinois to counteract the traditional attitude on this subject. The reviewer has never agreed with those advocates of state reorganization who would make the tax commission a subdivision of a department of finance. If this subjection means the slightest degree of control or interference by the director of finance, the integrity of tax administration is gone; if the director is to have no control, the inclusion of the tax commission in his department is of no value except as it contributes to a prettier picture of the state government. Tax administration is not a question of the prettiest picture, but the best results. Dr. Simpson does not go into the question that is here raised—given the other factors in the case, the Illinois tax commission would have functioned as poorly, had there been no director of finance. But the issue must be faced when the tax improvements are worked out. The tax commission must be absolutely independent, and it must be composed of men so honest and fearless that they can safely be left independent of other state administrative agencies.

With respect to reforms in the tax system, Dr. Simpson has the weight of opinion with him in recommending removal of the uniform rule. His endorsement of an income tax will likewise

be approved by qualified persons, although it is unfortunate that he did not follow the Model Plan of State and Local Taxation in distinguishing between a personal income tax and a business tax. The reviewer cannot agree with his thought that the wisdom of taxing corporate excess is open to question. It is not even open to question; it is in the discard. The business tax should be substituted, as being fully as effective, and far more simple and certain.

It is difficult for a reviewer to keep within his true province, and to avoid writing the other person's monograph. The criticisms here offered relate to questions of policy, some of which may afford ground for honest difference of opinion. These matters of policy are, after all, a comparatively small part of the present study. Perhaps they will serve as the starting point of Dr. Simpson's future work on the Illinois tax system. For the factual side of the work, and the immense labor which went into the compilation of the data here presented, the reviewer has the greatest respect and admiration. It is a distinctive piece of work. It should convince the most skeptical of the rottenness of taxation in Illinois.

H. L. Lutz.

BOOK NOTICES

Black, Archibald. Transport Aviation (Second Edition.) *New York: Simmons-Boardman Publishing Company, 1929. pp. vi, 348, $5.00.*

Woolley, James G., and Hill, Earl W. Airplane Transportation. *Hollywood, California: Hartwell Publishing Corporation: 1929. pp. xii, 353. $3.50.*

The new edition of *Transport Aviation* is described in the sub-title as *A Handbook of the Aviation Business*, and it is a much more ambitious venture than was the first edition of 1926. Mr. Black, who is himself a consulting engineer in the industry, has been assisted by 15 specialists, and the result is a comprehensive treatise which is authentic and timely. It fills the need for a textbook for a general course in air transportation, and it is so used at New York University. A thorough index and many charts and tables make it a convenient book of reference for the designers of commercial aircraft, operators of airlines, and investors in the air transportation business.

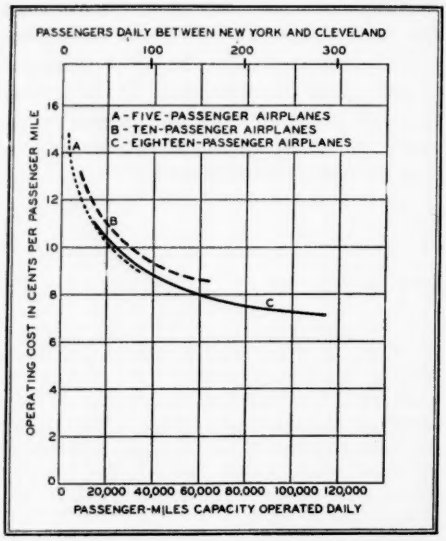
Eleven chapters of the 24 have to do with the equipment necessary for an airline offering a regular service, its original cost, and the cost of operation. Of these chapters, the first, "Influence of Design on Operating Costs," is a semi-technical discussion of the optimum combination of speed, size of airplane, and duration of flight. The relation between the factors involved are graphically demonstrated, using the results of Mr. Black's own experience and research in this controversial field.

The second of this group of chapters, "Large-Scale Operation of Airplanes," is of importance because it throws light on the moot question as to whether airplane transportation is a business of decreasing cost and hence one with a tendency toward monopoly.[1] Mr. Black offers no opinion concerning the likelihood of monopoly, but he does present the study which his firm recently made of the cost of operating an airline between New York and Cleveland. This study takes the form of estimates of the cost of operating five-place, ten-place, and eighteen-place airplanes one, two, four and eight round-trips daily. The resulting cost curves are shown in the accompanying diagram, which I have taken the liberty of preparing from Mr. Black's figures. The passenger-miles capacity operated daily was obtained by multiplying the number of passengers daily between New York and Cleveland by 395, the airway mileage.

The sharp decrease in cost while growing from a small beginning is not due to the

[1] For two diametrically opposed views on this subject, see H. L. Jome, "Commercial Air Transport" 6 *Harvard Business Review 209* (January 1928); and Myron W. Watlkins, "Economic Prospects of Air Transport" 6 *Public Utilities Fortnightly* 341, (September 19, 1929).

controlling influence of any single cost. It should be especially noted that it is not due to the spreading of capital charges, for Mr. Black has made his study in terms of cost in the accounting rather than in the economic sense; and no allowance is made for cost of capital, profit, or taxes. Also, for the sake of simplicity, he has assumed complete utilization of the capacity scheduled. If



these adjustments were made, the level of the curves would be higher, but the rate of downward slope would be accentuated. The combination of factors which gives rise to decreasing cost in the early stage of growth can be fully understood by recourse to the 12 cost budgets, which indicate that traffic department, insurance, depreciation, labor and executive personnel costs increase less rapidly than the volume of business. These are the principal causes of the first stage of decreasing cost.

If this demonstration of the behaviour of costs is correct, it indicates a tendency toward cutthroat competition in the situation where the airline is short and the traffic sparse. We now have many such lines. On the other hand, a condition approaching constant cost appears when the airline is long and a reasonable amount of traffic has been developed. We now have a few such lines. On such routes a duplication of facilities might be merely healthy competition.

The remaining chapters on cost in *Transport Aviation* are descriptive, rather than analytical. The group from 11 to 16 covers the characteristics which are commercially desirable in engines, airplanes, ground equipment, airports, and airways. Chapters 17 to 20 are a discussion of cost estimating for prospective airlines.

Airline Transportation is another textbook, which has grown out of a course offered since 1927 at the University of Southern California. In spite of this academic origin, the book is of a popular nature and the first four chapters, especially, are written in a romantic style. Throughout the book sources of information are rarely given, and its usefulness is impaired by the lack of an index.

A few errors in fact have crept in. For instance, in the list of early air-mail contractors on page 47, the Ford Motor Company is entirely omitted, although it was the first to commence operation under the Kelly Act. A much more serious error is the statement on page 48 that "the air-mail revenues received by these American companies in nowise constitute a subsidy, since they represent merely a division of special fees collected by government . . . and entail no expenditure from the public treasury." For the contract air-mail service as a whole the statement is decidedly in error. If by "subsidy" one means the direct cash loss to the government in the conduct of the service, the element of subsidy seems to have approximated one-fourth of the sums paid the contractors during the period February 1, 1927, to August 1, 1928.[2] After the cut in air-mail postage on August 1, 1928, the direct loss became quite large, as is shown by the Postmaster General's estimate of $7,000,000 loss on air-mail for the fiscal year.[3] This estimate was not available when *Airplane Transportation* was written, although the information previously cited was; but it is difficult to see how any one in close touch could believe that the revenues of the contractors "in nowise constitute a subsidy" after air-mail postage rates had been cut

[2] Computed on the basis of evidence in *Domestic Air News*, Department of Commerce, March 15, 1928, pp. 18, 19; and *Annual Report* of the Postmaster General, 1928, page 132.

[3] *Annual Report* of the Postmaster General, 1929, page 5.

substantially below the average payment to the contractors.

Mr. Woolley is a vice-president of the Western Air Express, and where he is qualified to speak on his own authority as an expert, the book is at times illuminating. This is true of the chapters on mail, passenger, and express traffic. There is a discussion in the last-named chapter of the origin of the system of cooperation with the Railway Express Company and the manner in which the rate structure for air express was set up.

An important chapter on the sort of meteorological service needed for efficient air transportation is contributed by Dr. Carl-Gustav Rossby of the Daniel Guggenheim Fund.

PAUL T. DAVID.

Sherman, Wells A. MERCHANDISING FRUITS AND VEGETABLES. *Chicago: A. W. Shaw Company, 1928. pp. xv, 494. $4.00.*

The present work is one that has two-fold significance. Those who are actually engaged in raising fruits and vegetables and in merchandising them will find this work admirable in its suggestions of the most practical kind. They will find new markets suggested for their products and better trade practices in the effective control of shipment described in very clear language. The author gives the "result-getting experiences" of organizations in California, Virginia and Texas, and he tells how these organizations have been able to increase the market for their products and also to increase their gains.

The man who is engaged in raising and marketing fruits and vegetables could have no better guide than Mr. Wells A. Sherman. He is not only the chief marketing specialist in the Bureau of Agricultural Economics in charge of the Fruit and Vegetable Division, but he is often described as the father of the present marketing system for these commodities. He has given his entire life to this activity and he deserves to be gratefully recognized for the services that he has rendered. In this connection the dedication of the book is significant:

> "To the people of the United States, in whose employ I have found opportunity, stimulation, education, and the joys of service, this volume is hopefully dedicated."

The student of land economics will find much that is of the greatest importance to him in this book. An article appeared in a daily paper recently, answering the question, "What is the cause of the farmers' distress?" with the words, "Mary Garden." The writer of that article claims that the slenderizing efforts of women are the cause of the present agricultural surpluses and low prices which are ruinous to the farmers. The changing diet of the American people is a most significant factor in the present situation. We are eating more and more fruits and vegetables, not only because many of us desire above all things to be slender but because we are told by diet specialists that it is better for us to eat fruit and vegetables and consequently less of other things. Now the growing of fruits and vegetables occupies relatively a small area of the country. If our diet consists increasingly of fruit and vegetables the question arises, what about the land that is taken out of agricultural use on account of the change in diet? Such questions as this are raised by those who are interested in agriculture from the public point of view.

Mr. Sherman, however, has written his book very largely and, perhaps chiefly, from the private point of view. The topics with which he deals are the background of our present trade and its expansion. He deals with the cooperative organization, with the activities of government, with the evolution of a terminal market inspection service, with the creation of demand and market psychology. Especially important is the discussion of the problem of surpluses and evolution in trade relationships. Undoubtedly it is the best book in the field at the present time.

RICHARD T. ELY

Tannenbaum, Frank. THE MEXICAN AGRARIAN REVOLUTION. *New York: Macmillan Company, 1929* (For the Institute of Economics of the Brookings Institution). *pp. xvi, 538. $2.50.*

One could hardly ask for an account of the Mexican agrarian revolution more complete and satisfactory than that given by Mr. Tannenbaum. Though not designed for popular perusal, the book will nevertheless hold well the interest of any reader seeking real information on this subject. As the title indicates, the author confines his atten-

tion to the agrarian movement, and touches the political side of the revolution only when necessary to make clear the situation with respect to the land.

The historical development of the prerevolutionary situation is briefly summarized, and the conditions that existed at the opening of the revolution in 1910 are explained: the distribution of the rural population (74% of the whole), the number, location and economic organization first of the free villages and then of the haciendas. Here, as elsewhere in the book, the lack of a map showing the states of Mexico is keenly felt. This lack cannot always be supplied by picking up any atlas or encyclopaedia that may be at hand, for some of them completely ignore the division into states of the Republic to the south of us.

The cause of the revolution is found in just those accomplishments of the Diaz regime which seemed to make it a brilliant success. Forced economic developments built up an "industrial feudalism" upon the existing "agricultural feudalism," disturbed the old economic organization, and brought about the introduction of foreign ideas that acted as a ferment on the hitherto backward and sluggish population.

The course of the revolution under various leaders is sketched. The agrarian program of the Constitution of 1917 is discussed at some length, and its Articles 27 and 123, which relate, respectively, to land and to labor, are given *in extenso* in appendices. The author makes clear that the ideal of the revolution is not communism or socialism or land nationalization, but a wide diffusion of a peculiar sort of private property in land, limited in many respects by the demands of "public utility" and "public interest"—in its extent, and as to the persons who may hold it.

The outstanding feature of the agrarian revolution, the land grants to villages, is taken up in Chapters IX and X. Because of the legal and practical difficulties involved, the plan of restoring to the villages the land of which they had been illegally deprived during the Diaz administration has proved, in most cases, impossible of fulfillment. Most of the villages that have been supplied with lands have received them as "donations;" the fact that they need more land is sufficient reason, under the law, for giving it to them. Lands required for the villages are taken from neighboring estates, whose owners are compensated, though not entirely to their satisfaction, and are allowed to retain a minimum area (varying in the different states according to the class of land). All other large owners will also be required ultimately to sell their land in excess of the permitted size of holding.

Other federal agrarian legislation is considered in Chapter XI: (1) the Irrigation Law, expected to break up large estates; (2) the Homestead Law, passed in 1923 but suspended in 1926 in connection with the passage of (3) the Colonization Law, "which is a part of the general program to break up large estates and to settle landless cultivators upon a piece of personally owned and tillable soil;" (4) the Idle Land Law, which large owners say is being misused. They accuse the peons of refusing to work for wages in the expectation of working these same lands later as "idle lands" tracts which the owners have not been able to put under crops because of a shortage of labor. State agrarian legislation, for the most part unenforced, is summarized in Appendix A.

Workers resident on haciendas do not share in the land grants, but they have been freed from serfdom and their position has been very much bettered by the application of Article 123 of the Constitution and the labor legislation based thereupon. (Chapter XII.)

Two chapters (XIV and XV) are devoted to foreign holding and the revolutionary legislation concerning it. The arguments of both the Mexican and the foreigner on this question are presented with admirable impartiality.

The author has made a statistical appraisal of the results of all this legislation in three chapters devoted, respectively, to land distribution from 1915 to 1926, to land ownership in Mexico today, and to changes in the rural community. That no greater number of villages have been supplied with land he attributes in part to Carranza's lack of interest in land reform. Though Carranza issued the famous decree of January 6, 1915, ordering the return of lands to the villages, the principles of which were reaffirmed in Article 27 of the Constitution, figures are given which show that his administration did little to put those principles into effect. Since the accession of Obregon in 1920, however, each year has seen several hundred villages added to the list of those provided with lands (Table on p. 329). The

shift of population from haciendas to free communities gives evidence of a desire on the part of the workers to become eligible for land grants. The increase in the number of schools, the interest of the villagers in political matters, and the wide organization of agricultural as well as other workers, all indicate that the revolution has really awakened the people of Mexico. The influence on production of the changes that are taking place in land ownership is not discussed, probably because the time which has elapsed since the changes were begun is not sufficient to permit accurate judgment on this point.

The facts presented by the author are authenticated by constant references to statistics collected by the Mexican Government, to Mexican public documents, and to public records, some of which have been published but most of which are manuscripts examined by the author in the offices in which they are preserved. Incidental explanations of the compilation of certain tables unconsciously reveal the immense amount of labor involved in the discovery of the facts. Unfortunately a very inadequate index provides a poor key to the rich mine of information contained in this painstaking survey.

MARY SHINE PETERSON

Epstein, Ralph C. and Clark, Florence M. TRENDS IN BUFFALO REAL ESTATE ASSESSMENTS, 1905-1928. *Buffalo: The University of Buffalo, Bureau of Business and Social Research, 1929. pp. 48. $1.00.*

This monograph is a summary and interpretation of the assessed valuations of land fronting on three of Buffalo's thoroughfares —Main Street, Elmwood Avenue and Delaware Avenue. The method of procedure has been to trace the assessed valuations, block by block, over two periods of 10 years each in the case of the first two streets (1905-1915-1925) and over two periods of three years each in the case of Delaware Avenue (1922-1925-1928). The authors have shown in semi-logarithmic charts the assessed valuations of the land fronting on these three streets, and in tables the percentage changes in assessed valuations during the chosen periods of time. For the year 1925 the assessed valuations of the three streets are compared. The explanation of the deviations of the percentage changes in different sections of these streets amounts to a brief history of the particular blocks in question. In general these changes are explained by the statement that "in part this is due to the influence of changes in the purchasing power of the dollar, in part to other influences". It is possible that, if the purchasing power of the dollar for a series of years were correlated with the trend of land values for the same years, a surprisingly different conclusion would be drawn. A generalization taken from two sets of figures ranging over a period of 20 years does not give an accurate interpretation of the situation. In Chicago the increase in value of certain sections of the city, over a period of 29 years, has been compared with the price level by means of a multiple correlation, with the result that the variation in value was found to be independent of the price level.

As stated above the figures used for the value of the land are the assessed valuations. These do not represent the true market value but are considered by the authors to be a fair index of the same. This method may be applicable in Buffalo, because the assessed valuations there are approximately 70% of the market value, and also because the deviation of assessed values from this average level of uniformity does not become a very important factor, but such a method of procedure would be misleading in a city such as Chicago. Following the authors' word of warning the study relates only to the three streets under survey and does not represent a trend of all land values in Buffalo. They do not claim that the city's real estate as a whole is increasing in value, as is the case in Chicago. Furthermore, they also prudently show that for "conspicuous increases there also are considerable areas....where values have not only remained stationary, but have actually decreased...."

JOHN E. BURTON.

Fisher, Ernest M. and Neibuss, Marvin L. CATALOG OF LONG-TERM LEASES IN DETROIT. *Ann Arbor: University of Michigan, Bureau of Business Research, 1929, pp. 117. $5.*

The compilation of actual material regarding real estate transactions is always to be commended. This study summarizes the provisions of 313 long-term leases in the downtown area of Detroit, Michigan. The data are taken from the public records where leases appear as early as 1834, although all

but 26 of the leases have been recorded since 1910.

Intelligent interpretation of long-term lease provisions in any locality must be prefaced by a summary statement of the legal situation in the jurisdiction. Many matters of terms, renewals and other items can only be interpreted in the light of such information. Such effort is completely absent from this study. Thus the title is correct: it is a "catalog."

I have always felt that the research worker in this field should assist in formulating policies or conclusions which are useful in later transactions and other communities. For example, the question of the merits of leases in perpetuity in contrast with short terms, flat rents *vs.* re-appraisals and other important matters are not treated. We must frankly face the issue as to whether the long-term lease is to become a high-grade, safe-return investment (*i. e.*, a method of financing) or whether it is going to become an undefined instrument of land speculation. The problems resulting from short-term leases without renewal clauses or with unique renewal clauses have become of increasing importance in the light of the need in large cities of assembling larger plots for our present type of central district improvement. The question of re-improvement arises, for example, in a 60-year leasehold which results in a 40-year improvement. These questions are merely suggestive and incomplete. They nevertheless are fundamental.

It would seem that after carefully collecting the materials the authors might have given us some tentative conclusions or suggestions on policy. Apparently, however, the matter must be dealt with by men in the business and we should not evince surprise when the practitioner declines to worship humbly at the throne of the business scientist.

H. Morton Bodfish.

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